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ABSTRACT

The Florida State Postsecondary Education Planning Commission was directed to assess the general education curriculum in the state's public community colleges and state universities with particular regard to implementation of State Board Rule 6A-10.030, FAC (Gordon Rule) and other state policies. Four sections present: general education curriculum reforms and requirements; the student survey; the transcript analysis; and conclusions and recommendations. The transcript analysis shows that state university students who completed the Gordon Rule requirements scored significantly higher on the College-Level Academic Skills Test (CLAST) mathematics and essay subtests than students who had not completed this requirement prior to taking CLAST. Seven recommendations include the following: an expanded transcript analysis involving computerized student transcripts and at least 50% of Florida's universities and community colleges should be conducted in 1991; state policymakers should not depend primarily on institutional grades as a yardstick or reliable measure of educational competence; and each state university and community college should examine its institutional policies and procedures to ensure that students are in compliance with Rule 6A-10.30, FAC. Appended are copies of the student survey instrument and student comments. Tables and figures are included. Contains 11 references. (SM)

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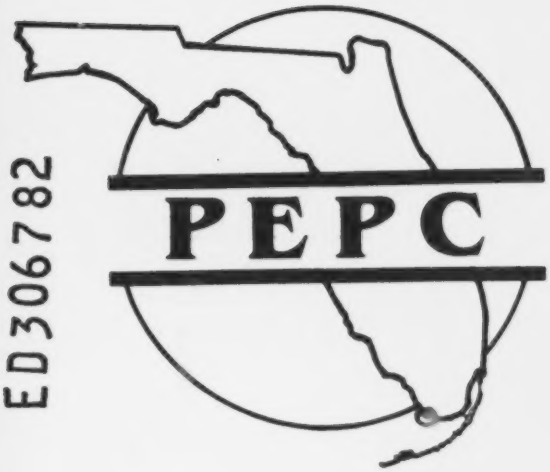

AN ASSESSMENT OF THE GENERAL EDUCATION CURRICULUM IN STATE UNIVERSITIES AND COMMUNITY COLLEGES

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Report and Recommendations of the Postsecondary Education Planning Commission

HE 022 431

1989 - REPORT 4

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The Postsecondary Education Planning Commission, initially created by executive order in 1980 and subsequently given statutory authority, serves as an advisory body to the State Board of Education on all postsecondary education matters. The Commission is composed of 11 members of the general public and one full-time student registered at a postsecondary education institution in Florida. Members are appointed by the Governor with the approval of three members of the State Board of Education and subject to confirmation by the Senate.

The major responsibility of the Commission is preparing and updating every five years a master plan for postsecondary education. The enabling legislation directed that the Plan "shall include consideration of the promotion of quality, fundamental educational goals, programmatic access, needs for remedial education, regional and state economic development, demographic patterns, student demand for programs, needs of particular subgroups of the population, implementation of innovative educational techniques and technology, and the requirements of the labor market. The capacity of existing programs, in both public and independent institutions, to respond to identified needs shall be evaluated and a plan shall be developed to respond efficiently to unmet needs."

Other responsibilities include recommending to the State Board of Education program contracts with independent institutions; advising the State Board regarding the need for and location of new programs and branch campuses of public postsecondary education institutions; reviewing public postsecondary education budget requests for compliance with the State Master Plan; recommending to the Commissioner of Education proposals for support through the Postsecondary Cooperation Trust Fund; and periodically evaluating the State's 28 regional coordinating councils for vocational education, adult general education and community instructional services.

Further information about the Commission, its publications, meetings and other activities may be obtained from the Commission office, 304 Knott Building, Department of Education, Tallahassee, Florida, 32301; telephone (904) 488-7894.

POSTSECONDARY EDUCATION PLANNING COMMISSION

AN ASSESSMENT OF THE GENERAL EDUCATION CURRICULUM IN STATE UNIVERSITIES AND COMMUNITY COLLEGES

Prepared in Response to
Specific Appropriation 527
of the
1988 General Appropriations Act
(Chapter 88-555, Laws of Florida)

1989 - Report 4

February 16, 1989

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EXECUTIVE SUMMARY

In proviso language accompanying Specific Appropriation 527 of the 1988 General Appropriations Act, the Florida Legislature directed the Postsecondary Education Planning Commission to "undertake an assessment of the general education curriculum in Florida's public community colleges and state universities with particular regard to implementation of State Board Rule 6A-10.030, FAC (Gordon Rule), and other state policies. The assessment should include the program assessment efforts already underway and all other pertinent information. A report and recommendations shall be submitted to the State Board of Education and the Legislature by March 1, 1989."

The Commission chairman assigned this study to the Program Committee which included Commission members Robert Kerrigan, chairman, Donald Kahn, Robert Mautz, Thomas McGehee, and Carolyn Wilson. The Committee held five public meetings at which information was presented and comments sought on national studies and reform efforts in other states, Florida initiatives to improve general education curriculum and assessment, a survey of community college and state university students, a catalog analysis of general education requirements, and an analysis of student transcripts in Florida's public community colleges and universities.

Over the last few years, the condition of undergraduate education has become the focus of a national policy debate. Several blue-ribbon commissions have issued policy reports which promoted renewed emphasis on the undergraduate experience. The National Governor's Association, the National Endowment for the Humanities, the National Institute of Education, the Education Commission of the States, the Association of American Colleges, the Southern Regional Education Board and the Carnegie Foundation for the Advancement of Teaching have each reviewed the condition of undergraduate education in the United States and called for changes. Their reports have emphasized different issues and proposed different solutions but they have sounded common warnings. Concern over inadequate preparation of college-bound students and poor communication between high school and college, a fragmentation of learning into narrow disciplines with a loss of a common sense of purpose or goals for the undergraduate experience, a conflict between career-oriented curriculum and the liberal arts, increased demands on faculty time between research and teaching, and the inability to determine a college's success in fulfilling its mission are a few of the issues that have been repeated in these reports and bear directly on the undergraduate experience.

A concern related to education is the assessment of the accomplishment of students. During the past five years, there has been a growing recognition on the part of faculty and administrators, appointed lay representatives, elected political leaders, and officials of accrediting associations of the need to justify public support for higher education and to achieve quality assurance by evaluating the effectiveness of higher education institutions. Support for some form of student outcomes assessment is high yet there is little agreement on the appropriate role of a state in standardizing or mandating the assessment of student learning.

The State of Florida has undertaken a number of initiatives in the last ten years to curtail the decline in general education. These efforts have been

oriented primarily to mastery of two content areas, communication and computation, and have focused on basic or minimal skills. The State has made progress in its insistence on minimal levels of preparation in the basic skills of computation and communication. For the related concern of assessing students, the State has provided for outcomes measurements with the CLAST examination and process measures with State Board Rule 6A-10.030, FAC, which requires a specific number of hours in English or humanities and mathematics. However, beyond requiring all colleges and universities to develop a core curriculum of 36 hours, no detailed specifications have been set regarding the content or breadth of general education requirements or integrating the total undergraduate experience. As addressed in the 1988 Master Plan Update, a crucial problem facing the State is the determination of the appropriate role of state policymakers in affecting curriculum so that a proper balance is maintained between the responsibility of the State to set policy and provide resources, and the responsibility of institutional faculty and administrators to develop and implement quality educational programs.

The Commission's study provides an assessment of the degree of compliance with the general education curriculum requirements in state universities and community colleges. The study includes an analysis of research studies related to general education both nationally and in Florida, a survey of the perceptions of Florida state university and community college students regarding general education and Gordon Rule requirements, a catalog analysis of the general education and Gordon Rule requirements, and a transcript analysis which determines which types of courses students actually take during their first two years in college. The empirical transcript analysis includes an array of statistical information and comparisons by types of students, academic majors, and institutions.

The Commission's analysis of student transcripts was limited to an examination of a sample of associate of arts recipients in community colleges and lower division students in the State University System. Accordingly, state university transcripts were not analyzed to identify courses beyond the first two years of college nor to determine whether general education core curriculum courses were completed prior to receipt of the baccalaureate degree. The Commission believes an expanded transcript analysis conducted after all transcripts from public institutions are on-line in 1990-91 would provide this additional information for state university students. In addition, several findings and conclusions from this study could be re-examined at that time using a larger student sample and a greater number of community colleges and state universities.

State Board of Education Rule 6A-10.030, FAC, requires that students complete at least 12 semester hours of communication courses and six semester hours of mathematics prior to receipt of an associate of arts degree or entry into the upper division. The transcript analysis and student survey have shown that certain postsecondary institutions have had a difficult time accommodating the additional instruction and monitoring necessary for the implementation of the rule. For community college students, completion of Gordon Rule coursework was not a major problem. A majority of the community college students surveyed by the Commission expressed a positive opinion of Gordon Rule requirements and also perceived a similar attitude among their faculty. In comparison, a major concern was identified among state university students

both in their attitude toward and completion of the Gordon requirements as well as the students' perceived attitude among their faculty.

A major finding in the transcript analysis was that state university students who had completed the Gordon Rule requirements scored significantly higher on the CLAST mathematics and essay subtests than students who had not completed this requirement prior to taking CLAST. The completion of the Gordon Rule requirements helps students acquire the basic skills in writing and computation necessary for advanced coursework. The study concluded that institutional administrators need to ensure that courses used to satisfy Gordon requirements meet the State's and institution's prescribed standards and facilitate improvements in students' writing abilities.

The College-Level Academic Skills Test was implemented to ensure that college students graduating with an associate of arts degree or entering the upper division at a state university possess basic or essential academic competencies deemed necessary for success. Research on the factors related to student performance on the CLAST has been conducted by state agencies, postsecondary institutions and interested individuals. The Commission's transcript study reinforced several factors related to student achievement on the CLAST subtests. First, the effect of a student's entering academic ability and the relationship to subsequent CLAST performance seems clear. Students with lower SAT scores upon entering college scored significantly lower on all CLAST subtests when compared to students with higher SAT scores. Second, a relationship appears to exist between student performance on the CLAST mathematics and essay subtests and completion of Gordon coursework. Students in the sample who had completed Gordon communication and computation requirements scored significantly higher on these two CLAST subtests than non-completers. Although this finding does not warrant an absolute cause and effect conclusion between completion of Gordon requirements and high CLAST scores, it does suggest some relationship between the two. Finally, the requirements of the academic major appear to be a factor in determining CLAST performance for some subtests. The Commission's exploratory analysis revealed significant differences in the performance on some CLAST subtests when the student sample was analyzed by academic major. Although this difference may in some ways be related to the abilities of students in certain majors, some variation in scores may be explained by course content and selection patterns present within different academic programs of study.

The Commission believes that if students are to achieve higher scores on the CLAST subtests, they must be provided the opportunity for instruction, counseling, and support services as needed. Since changes in statute (Section 240.107, F.S., adopted in 1986) and State Board of Education Rule 6A-10.0311, FAC, now permit students to take the CLAST anytime prior to the previously accepted 60th semester hour, the burden of identifying and providing assistance to remedial students rests more heavily upon individual institutions. The Commission believes that higher education administrators, faculty, counselors, and students would benefit from being informed that the results of this research indicate completion of Gordon requirements has a positive effect on CLAST scores.

Over 29,000 grades were coded on the 1,260 student transcripts included in the study. The results showed wide variance among institutions in terms of the

percentage of grades given with consequent variation in the grade point average of students enrolled at each institution. The large percentage of A's and B's given by the 10 institutions supports the public criticism of grade inflation prevalent in postsecondary education institutions both nationally and in Florida.

The Commission believes that the grading standards of any institution are a legitimate subject of concern for the institution. While the grade given by an individual faculty member to any one student is the prerogative of the faculty member, the standards that the professor expresses in the class as a whole, or individual faculty grading pattern, are a legitimate concern of the individual institution as well as state policymakers. The Commission believes that grading standards and policies need institutional review and that grading patterns should be monitored by the Board of Regents and the State Board of Community Colleges. In addition, state policymakers must not set state standards based on the assumption that institutional grades are a reliable measure of educational competence.

The appropriate advisement of students in community colleges and state universities continues to be a concern for those involved in postsecondary education. The need for improvements in the area of counseling and advising was reiterated in the student survey conducted as part of the Commission's 1988 Master Plan Update. Academic advising is the process by which faculty members assist students in evaluating their academic progress, formulating realistic educational goals, and maximizing the use of institutional resources. An immediate objective of the advisor is to guide the student in meeting academic program requirements for the course of study the advisee chooses and is prepared to pursue. When delivered properly, the advisement process can be a significant factor in the student's educational growth and development.

As an integral and necessary part of the education process, academic advising has presented problems for recipients as well as for the individuals providing the service. Students have repeatedly testified that the process is often inadequate and frustrating, and that academic advising in Florida's institutions of higher learning needs to be improved.

The 1985 Florida Legislature provided the first in a series of appropriations for the development of a Student Academic Support System (SASS), a single advisement system for each of the nine state universities. In addition, the State Board of Community Colleges was first appropriated funds in 1986-87 to initiate the Student On-Line Advisement and Articulation System (SOLAR). The Commission believes that the SASS and SOLAR student advisement systems could include information pertaining to the Gordon Rule, general education core curriculum, and CLAST requirements to ensure the adequate advisement of students.

The specific recommendations proposed by the Commission are as follows:

Recommendations:

1. **An expanded transcript analysis involving computerized student transcripts and at least 50 percent of Florida's state**

universities and community colleges should be conducted in 1991. This expanded analysis should include an examination of the general education hours taken by state university students throughout the baccalaureate program.

2. Each state university and community college should examine its institutional policies and procedures to ensure that students are in compliance with SBE Rule 6A-10.30, FAC. Students must complete the communication and mathematics requirements of the Gordon Rule prior to entry into the upper division or receipt of the associate of arts degree.

3. Institutional administrators should survey students and faculty involved in courses which are used to meet the Gordon Rule writing requirements. Efforts should be made by each institution to ensure that courses used to satisfy the Gordon writing requirement provide a positive learning experience for students, and that the content and quality of the assignments used to satisfy the writing requirement meet the institution's prescribed standards, are properly evaluated, and facilitate improvements in students' writing abilities.

4. The results of the Commission's research efforts relating to the value of completing Gordon Rule requirements prior to attempting the CLAST should be communicated to community college and university administrators, faculty, and counselors to enhance student advisement.

5. The Board of Regents, State Board of Community Colleges and local boards of trustees should monitor the grading patterns of state universities and community colleges. Periodic reports should be sent to individual institutions by the respective boards for review. Each institution should examine its grading standards, including its forgiveness policy, to ensure that the grading patterns reflect institutional standards and are actually being implemented.

6. State policymakers should not depend primarily on institutional grades as a yardstick or reliable measure of educational competence or for prescribing the minimum accomplishments necessary for progression from one educational level to another.

7. The State University System, the State Board for Community Colleges and institutional administrators should review the development of the SASS and SOLAR student advisement systems at the state and institutional levels to ensure that adequate information is included on the Gordon Rule, general education core curriculum, and CLAST requirements.

I. INTRODUCTION

In proviso language accompanying Specific Appropriation 527 of the 1988 General Appropriations Act, the Florida Legislature directed the Postsecondary Education Planning Commission to "undertake an assessment of the general education curriculum in Florida's public community colleges and state universities with particular regard to implementation of State Board Rule 6A-10.030, FAC (Gordon Rule), and other state policies. The assessment should include the program assessment efforts already underway and all other pertinent information."

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The 1982 Master Plan for Florida Postsecondary Education identified several specific areas of concern regarding general education and offered recommendations for improvement. First, the Master Plan called for better prepared students through improvements in teacher education and teacher in-service education and through closer ties between the K-12 sector and higher education. Second, higher admission standards were recommended in the State University System. Third, explicit standards of performance in the critical basic skills areas were called for in college-parallel programs in the community college sector. Fourth, a renewed offensive against the decline of general education was recommended through the identification by community colleges and state universities of a core curriculum which reflects essential areas of knowledge in the liberal arts.

Since the publication of the Master Plan, significant progress has been seen in three of the areas above. First, the preparation of students has improved considerably with the more rigorous requirements of high school graduation established in the 1983 RAISE Bill. Second, the university system has repeatedly raised its admission requirements through such efforts as increasing the required SAT entrance score while allowing for a 10 percent exemption per institution. Third, minimum standards of performance in basic skills have been established through the entry-level basic skills testing requirements. It is less clear that progress has been made by individual institutions in the identification of a core curriculum even though there have been considerable efforts at some institutions.

As stated in the 1988 Master Plan Update, the implementation of the Gordon Rule has presumably affected the general education curriculum over the last five years. The program may have effected change in the number and mix of lower division courses, the content of existing courses, the establishment of new courses, and changes in student-initiated course selection patterns. Other actions that should have impacted the lower division curriculum include college preparatory coursework which is required of students not meeting state

standards for entry-level basic skills and the implementation of the CLAST. The 1988 Master Plan Update further stated that an assessment of the current status of the general education curriculum would provide useful information regarding the impact of the State's efforts to improve undergraduate education, and that such a study should be conducted by the Commission in cooperation with the State Board of Community Colleges and Board of Regents.

Two program assessment efforts are currently underway to analyze and improve the quality of undergraduate education in Florida. The Legislature directed the Commission to consider these efforts as the study developed. First, the State University System reviewed the condition of undergraduate education at the nine state universities and issued a report in February 1987 titled "Enhancing Undergraduate Education in the State University System of Florida." The report made recommendations in a number of areas including funding, high school-college relations, the two-plus-two system, academic advisement, curriculum, faculty, quality teaching, student involvement, and assessment. The 1988 Legislature called for a follow-up study, and asked the Board of Regents to submit a detailed report specifying how each state university has addressed the achievement of quality outcomes anticipated by the 1987 Undergraduate Education Task Force including an examination of the "quality of the core curriculum." The linkage and potential overlap between this effort and the Commission's study enabled the Board of Regents and Commission to work closely on the analyses.

Second, in 1988, the State Board of Community Colleges initiated a comprehensive program review of the associate of arts degree program at the 28 community colleges to assess institutions' effectiveness in meeting the general education needs of students and in preparing them for transfer to an upper-division program. Both of these efforts, when completed, could be constructive forces in improving undergraduate education in the State.

Commission Activities

Previous studies, surveys, informational materials and task force reports relating to undergraduate education and transcript analyses provided a substantial preliminary base for this study. These endeavors will be described in detail in Chapter II. Additional research activities were conducted by the Commission for the assessment of the general education curriculum in Florida's public community colleges and state universities. These included:

A. A transcript analysis of over 1,200 student transcripts at four state universities and six community colleges to examine the actual coursework which composes the general education curriculum and to identify how Gordon Rule requirements are being met;

B. A survey of students at five postsecondary institutions included in the transcript analysis to determine student attitudes for and student perceptions of general education and Gordon Rule requirements, and the CLAST; and

C. A college catalog analysis of the general education core curriculum and Gordon Rule requirements.

This study necessitated the direct involvement of the State Board of Community Colleges and Board of Regents. Information which was not available from the state boards was requested from individual institutions. The Florida Student Association also participated in the study.

Following the conclusion of all research and other activities related to the study, the Program Committee presented a final report to the Commission on February 16, 1989 for final action and transmittal to the Legislature and State Board of Education by March 1, 1989.

II. GENERAL EDUCATION CURRICULUM REFORMS AND REQUIREMENTS

Over the last few years, the state of undergraduate education has become the focus of a national policy debate. Several blue-ribbon commissions have issued policy reports which promoted renewed emphasis on the undergraduate experience. The National Governor's Association, the National Endowment for the Humanities, the National Institute of Education, the Education Commission of the States, the Association of American Colleges, the Southern Regional Education Board and the Carnegie Foundation for the Advancement of Teaching have each reviewed the condition of undergraduate education in the United States and called for changes. Their reports have emphasized different issues and proposed different solutions but they have sounded common warnings. Concern over inadequate preparation of college-bound students and poor communication between high school and college, a fragmentation of learning into narrow disciplines with a loss of a common sense of purpose or goals for the undergraduate experience, a conflict between career-oriented students and curriculum and the liberal arts, demands on faculty time between research and teaching, and the inability to determine a college's success in fulfilling its mission are a few of the issues that have been repeated in these reports and bear directly on the undergraduate experience.

Undergraduate education encompasses a wide field. This chapter will draw upon previously cited national and state efforts to describe the condition of undergraduate education and specifically the general education component.

National Studies and Efforts in Other States

General Education

A frequently heard criticism of the current undergraduate curriculum is the erosion of the centrality of the general education or liberal arts component in the baccalaureate program. The deterioration has occurred as a result of several forces: (1) the substitution of a free-elective system for a more closely defined set of courses; (2) a loss of hours in general education in order to increase coursework in the major field; and (3) the fragmentation of knowledge to the extent that broad survey courses have been replaced by narrow preprofessional courses even in the humanities and social sciences.

A greater number of undergraduates are majoring in more specific disciplines which are increasing in number. American colleges and universities now offer more than 1,100 different majors and programs, and nearly half of them are in occupational fields. The proportion of baccalaureate degrees awarded in arts and sciences fell from 49 percent in 1971 to 36 percent in 1982. The percentage of general education (or transfer degrees) awarded by community colleges declined from 57 percent in 1970 to 37 percent in 1981, with a corresponding rise in occupational degrees. Furthermore, accreditation standards for undergraduate professional programs often prescribe a large portion of professional courses as a prerequisite for the degree.

The National Institute of Education's 1984 report Involvement in Learning discusses the problem of the deceptive nature of credit as a measure of worth or intellectual attainment: "Credits are measures of time and performance, but they do not indicate the academic worth of course content. For example,

in some colleges, students can earn the same number of credits for taking a course in family food management or automobile ownership as for taking a course in the history of the American city or neuropsychology."

The Association of American Colleges 1984 report Integrity in the College Curriculum addressed these concerns:

> The curriculum has given way to a marketplace philosophy: it is a supermarket where students are shoppers and professors are merchants of learning. Fads and fashions, the demands of popularity and success, enter where wisdom and experience should prevail...
>
> The marketplace philosophy refuses to establish common expectations and norms. Another victim of this posture of irresponsibility is the general education of the American college undergraduate, the institutional course requirements outside the major. They lack a rationale and cohesion or, even worse, are almost lacking altogether. Electives are being used to fatten majors and diminish breadth. It is as if no one cared, so long as the store stays open.

The 1987 Carnegie Foundation report College, echoing these sentiments, reported that "general education is the neglected stepchild of the undergraduate experience. Colleges offer a smorgasbord of courses, and students pick and choose their way to graduation...Faculty agree on the number of credits for a baccalaureate degree, but not on the meaning of a college education. Students, geared toward job training, complete courses, but general education is something to 'get out of the way,' not an opportunity to gain perspective."

Reasons that have been given to explain this phenomenon include the increasing departmentalization of faculty with few able or willing to concern themselves with the general education of the student, the increase in technological fields requiring more narrowly focused education, an increase in the number of basic skills courses designed to meet the challenges of testing, and a rise in the number of students whose primary concern is the immediate marketability of their degrees.

Nonetheless, there is encouraging evidence as well. In a national survey of one thousand chief academic officers conducted by the Carnegie Foundation in 1986, more than half reported that during the past five years their commitment to general education has increased as evidenced by the imposition of more rigorous requirements; only a small percentage said it declined. Today, 95 percent of all four-year colleges require some form of general education coursework. Table 1 supports encouraging evidence that general education requirements are increasing in most areas. The percentage of colleges requiring at least one course in English, philosophy, western civilization and international education have shown some increase since 1970. The greatest increases have been in computer literacy, mathematics and the arts. However, the Carnegie Foundation also noted that even with these changes, only three subjects -- English, mathematics and the arts -- are required by 60 percent or more of the colleges.

TABLE 1

COURSE REQUIREMENTS FOR GENERAL EDUCATION
1970 AND 1985

Course	Percentage of Colleges Requiring at Least One Course in Selected Subjects		
	1970	1985	Change
English Composition	77	85	+8
Physical Education	59	51	-8
Mathematics	49	67	+18
The Arts	44	60	+16
Philosophy/Theology	44	50	+6
Foreign Languages	42	34	-8
History of Western Civilization	40	45	+5
International/Global Education	4	14	+10
Third-World Studies	3	7	+4
Computer Literacy	1	21	+20

SOURCE: The Carnegie Foundation for the Advancement of Teaching, Survey of Chief Academic Officers, 1985.

The Carnegie Foundation report concluded that "general education urgently needs a new breath of life. More coherency is required to relate the core program to the lives of students and to the world they are inheriting. There is a need for students to go beyond their separate interests and gain a more integrated view of knowledge and a more authentic view of life."

Insisting on the importance of broader goals of higher education beyond proficiency in one discipline, the Carnegie report calls for requiring all students to write a senior thesis that would relate the major to historical, social or ethical concerns. The report also suggested that students participate in a senior seminar where students would present their reports orally and critique the papers of other students. The Carnegie Report argues that through such mechanisms, "students should be reminded that the truly educated person makes connections across the disciplines and ultimately relates what he or she has learned effectively to life."

A study of 504 institutions, which was released in February 1989 and sponsored by the National Endowment for the Humanities, concluded that few higher education institutions have increased general education requirements for undergraduate students in the last five years. The study, "General Education and Humanities Requirements," found that only five percent or fewer of the institutions surveyed had increased their requirements in the humanities since 1983-84. However, the study also noted that many institutions were changing the structure of their general education requirements. In 1988-89, 68 percent of the institutions limited the range of courses which students could use to

meet the requirements, an increase of nine percent from five years ago. The Chairman of NEH stated that if the trend towards more narrowly defined distribution courses in general education continues, undergraduates may be better directed to a broader exposure to the humanities during their college experience.

State policymakers have generally been reluctant to dictate curricular length or content, and institutions have generally proclaimed that curriculum is and must be a prerogative of the faculty. However, the widespread lack of confidence in the ability or willingness of academicians to make the necessary decisions and a recognition of internal institutional obstacles to setting forth curricular prescriptions have caused some states to take action.

The Louisiana Board of Regents in 1986 adopted a set of curricular requirements generated by the Statewide Task Force on General Education with representatives from all public and several private colleges. The Task Force enumerated a set of goals for each student as a result of the general education component of the undergraduate program. The goals included the curricular requirements of six hours of English composition with mandated competency examinations, six hours of mathematics at the college algebra level or higher with a mandated competency examination, basic computer literacy, nine hours of natural sciences, three hours in the arts, nine additional hours in the humanities, and six hours in the social sciences. A supplemental list of additional "suggested" courses was also developed, the completion of which could result in a Regents Certificate of Excellence (See Table 2).

Assessment

The assessment of student outcomes is a concern related to general education. During the past five years, there has been a growing recognition on the part of faculty and administrators, appointed lay representatives, elected political leaders, and officials of accrediting associations of the need to justify public support for higher education and to achieve quality assurance by evaluating the learning performance of higher education institutions at the undergraduate level.

The impetus to evaluate the effectiveness of higher education institutions has come from a number of different quarters. Former Secretary of Education William Bennett asserted that:

> Colleges must begin to assess their performance and publish the results because parents and students are growing uneasy about the rapid rise in tuition costs and they need consumer protection. Because colleges have not provided such information the rumor mill has flourished and prospective students face a landscape barren of real information with which to make informed choices, but are littered instead with trendy indicators of campus popularity and status. No one wants high-school seniors depending on slick publications that claim to tell it like it really is... The traditional gauges of academic quality -- input measures such as faculty-student ratios, the number of students with doctorates, and library holdings bare little on what critics

TABLE 2

REQUIRED AND SUGGESTED GENERAL EDUCATION COURSEWORK
FOR BACCALAUREATE PROGRAMS IN LOUISIANA*

REQUIRED		SUGGESTED (Required for Regents' Certificate of Excellence)	
ENGLISH	6 Hours (Composition)	**ENGLISH**	6 Hours (Composition) 3 Hours (Literature)
MATHEMATICS	6 Hours	**MATHEMATICS**	6 Hours
COMPUTER LITERACY	(Requirements to be determined by each campus)	**COMPUTER LITERACY**	(Requirements to be determined by each campus)
NATURAL SCIENCES	9 Hours	**NATURAL SCIENCES**	11 Hours (To be met by taking required courses for majors; to include laboratory courses)
ARTS	3 Hours	**ARTS**	3 Hours
HUMANITIES**	9 Hours (To include at least 3 credit hours at the sophomore level or above)	**HUMANITIES****	15 Hours (To include at least 3 credit hours at the sophomore level or above; to include at least 6 credit hours of a foreign language above the introductory level)***
SOCIAL SCIENCES	6 Hours	**SOCIAL SCIENCES**	6 Hours
TOTAL	**39 Hours**	**TOTAL**	**39 Hours**

* Students may obtain equivalent credit for required or suggested coursework in accordance with policies and procedures of the college or university, e.g., for advanced placement (AP) tests or the College-Level Examination Program (CLEP).

** The Board of Regents recommends (but does not require) that each student take a course in philosophy/ethics to help clarify moral values and choices.

*** No credit hours earned in introductory foreign language coursework can be used to fulfill requirements for the Regents' Certificate of Excellence. Introductory coursework (or its equivalent) and advanced coursework must be in the same foreign language.

> charge are academe's shortcomings -- that many of our graduates do not seem to possess the knowledge, skills, and in some cases the character and civic virtues that should constitute a highly educated person.

The six regional accrediting associations have become a major catalyst in promoting outcomes assessment. Two of the six, the Middle States Association of Colleges and Schools and the Southern Association of Colleges and Schools (SACS), have established new standards to require outcomes assessment. The other four have encouraged institutions to assess outcomes through the existing standards.

State leadership has also been in the forefront of these initiatives. In 1986, the National Governor's Association Task Force on College Quality recommended:

1) that state officials should clarify the missions of each public institution and encourage the same for independent colleges;

2) that state officials should reemphasize the fundamental importance of undergraduate instruction;

3) that each college and university implement programs that use multiple measures to assess undergraduate student learning as a means of evaluating institutional program quality and share the information with the public;

4) that state officials should adjust funding formulas to provide incentives for improving undergraduate student learning based upon the results of comprehensive assessment programs and encourage independent colleges to do likewise;

5) that state officials reaffirm their commitment to access to public higher education for students of all socioeconomic backgrounds; and

6) that accrediting associations use the information generated by student assessments in their considerations to grant institutional accreditation.

Assessment policies have been established in statute in two states, Florida and Colorado, through governing or coordinating boards in five other states, and a recent survey indicates that 17 states have pending legislation requiring outcomes assessment. In addition, a number of individual colleges and universities have or are establishing their own programs.

The 1984 National Institute of Education report, Involvement in Learning, in a clear and powerful pronouncement, stated that excellence in higher education requires the following:

1) That institutions of higher education produce demonstrable improvements in student knowledge, capacities, skills, and attitudes between entrance and graduation;

2) That these demonstrable improvements occur within established, clearly expressed, and publicly announced and maintained standards of performance for awarding degrees based on societal and institutional definitions of college-level academic learning; and

3) That these improvements are achieved efficiently, that is, that they are cost-effective in the use of student and institutional resources of time, effort and money.

Support for some form of assessment of student outcomes is high yet there is little agreement on the appropriate role of a state in standardizing or mandating student learning assessment. An American Council on Education national survey of college administrators in 1986 reported that 81 percent agreed with linking assessment to institutional improvement. When asked if some form of assessment is likely to be introduced on campus in the next few years, 75 percent answered affirmatively, but only 43 percent believed that states should require evidence of effectiveness. The Carnegie Foundation report stated categorically that "the integrity of higher education requires that public agencies not get involved and begin even indirectly to control the education process. State-imposed outcome measures should be resisted. Such efforts often measure that which matters least and fail to consider the most essential traditions of higher education."

Most state programs allow individual institutions to develop their own criteria and procedures. Within the public sector, a number of states have begun programs designed to encourage institutional assessment. Examples are described below.

Colorado enacted a Higher Education Accountability Law in 1985 requiring higher education institutions to be held accountable for "demonstrable improvements in student knowledge, capacities, and skills between entrance and graduation." Beginning in July 1990, the Colorado Commission of Higher Education can withhold up to two percent of an institution's appropriation if the institution has not implemented the accountability standards.

Maryland's 1986 postsecondary education plan draws clear distinctions among the segments and institutions of higher education. The recently adopted policy on student assessment will be closely tied to each institution's role and mission. Campuses will develop their own measures of student performance but these will be reported to the regents and will be used to review campus programs and to improve teaching.

Missouri public colleges and universities are developing a means to assess student performance with a clear link to institutional mission. The state coordinating board will use assessment data to determine if institutions are accomplishing their mission. Governor John Ashcroft has

asked for public disclosure of both the assessment results and the instruments used. Institutions will develop their own assessment programs.

Tennessee's performance funding program, passed in 1977, provides up to five percent additional funds for state colleges and universities that have student assessment programs to measure general education and subject-matter mastery, as well as other student outcomes.

The most comprehensive statewide assessment system is being developed in New Jersey. The New Jersey College Outcomes Evaluation Program is developing an assessment program that will include measures of general intellectual skills aimed at evaluating institutional performance, and ultimately, improving student learning. General education and major field assessment will be developed in relation to specific institutions and programs.

The State of Florida currently has no state-initiated program to assess outcomes at the end of the undergraduate program. However, three areas of related activity are present. First, individual departments within colleges and universities may assess learning in the major field. Second, all the public and private institutions in the State that seek SACS accreditation must now establish a procedure for evaluating the extent to which their educational goals are being achieved and ascertain periodically the change in academic achievement of their students. Third, all public institutions are required by the State to review their programs every five years. Outcomes assessments are being built into some of these reviews.

At present, most of these activities are in an embryonic stage. One may conclude that minimal outcomes assessment is presently occurring in the State and, where found, it is usually oriented toward the specific major and not the totality of the undergraduate experience.

Florida Efforts to Improve General Education Curriculum and Assessment

The State of Florida has undertaken a number of initiatives in the last ten years to curtail the decline in general education. These efforts have been oriented to mastery of two content areas, communication and computation, and have focused primarily on basic or minimal skills.

First, in the late 1970s, the State Board of Education defined and placed in rule the communication and computation skills considered essential for mastery by all college students. In 1982, the State developed and required completion of a test designed to measure these skills -- the College-Level Academic Skills Test (CLAST). In 1984, the State required passing of the test for unqualified advancement to the upper division. The CLAST is a state-mandated test required of all public community college and state university students prior to receipt of the associate of arts degree and advancement to the upper division. The test assesses communication and computation skills. It is not, nor does it purport to be, a comprehensive assessment of the undergraduate experience. It primarily evaluates what is learned in freshman English and mathematics courses which may account for less than one-sixth of a college curriculum. Furthermore, the level of competence

required for passing CLAST is so low that many students have mastered the skills prior to high school graduation. Thus, a legitimate question may be raised as to the appropriateness of the test as a measure of the level of performance for students to be certified as having completed the first two years of college.

Second, during this same time period in 1982, the State Board of Education debated and adopted SBE Rule 6A-10.030, FAC, (the Gordon Rule) requiring all students to take 12 hours of English or humanities coursework and six hours of mathematics at the college algebra or higher level. Specifically, prior to being awarded an associate of arts degree or prior to entry into the upper division of a public university, students in Florida's community colleges and state universities must successfully complete:

a. Twelve semester hours of English coursework in which the student is required to demonstrate writing skills. An English course is defined as any semester-length course within the general area of humanities in which the student is required to produce written work of at least 6,000 words.

b. Six semester hours of mathematics at the level of college algebra or higher. Three semester hours may be fulfilled by courses outside the mathematics department such as logic or statistics.

c. Students awarded college credit in English based on their demonstration of writing skills through dual enrollment, advanced placement, or international baccalaureate instruction pursuant to Rule 6A-10.024, FAC, and students awarded college credit based on their demonstration of mathematics skills at the level of college algebra or higher through one or more of the acceleration mechanisms in Rule 6A-10.024, FAC, shall be considered to have satisfied the requirements to the extent of the college credit awarded.

A grade of C or higher is required for successful completion of a Gordon requirement. The Gordon Rule permits a number of exemptions and waivers:

> Students who achieve a 4.0 average for their first six hours of English coursework may waive the remaining six hours until after entry into the upper division of a university and shall be considered eligible for an Associate of Arts degree.
>
> Community colleges and state universities desiring to exempt their students from the above requirements may submit an alternative plan through the State Board of Community Colleges or the Board of Regents to the State Board of Education for approval.

Third, another measure which has affected undergraduate coursework is the implementation of common placement tests. Since June 1984, Florida public community colleges and state universities have been required to assess the basic computation and communication skills of students intending to enter a

degree program (Section 240.117, F.S.). The State Board of Education is responsible for specifying common placement tests and testing procedures. As of July 1, 1985, the State Board adopted scores below which a student is determined to need additional preparation. Students needing additional preparation are required to enroll in college preparatory courses to develop needed college-entry skills. These students are permitted to take courses concurrently in other curriculum areas for which they are qualified while enrolled in college preparatory instruction courses. Credit awarded for college preparatory instruction may not be counted toward fulfilling the number of credits required for a degree.

The above three initiatives have been oriented to the basic skills considered essential to higher learning but do not deal with the question of general or liberal arts education. In 1985, the State Board of Education took action in the area of general education by adopting a rule requiring each public higher education institution to adopt a core curriculum without specifying the nature of that curriculum. The articulation agreement (SBER 6A-10.024, FAC) requires that each institution identify a general education core curriculum and a minimum of 36 semester hours of college credit in the liberal arts and sciences for students working toward a baccalaureate degree. However, beyond requiring all colleges and universities to develop a core curriculum, there have been no specific actions regarding the content of the core curriculum, breadth of general education requirements, or the integration of these requirements into the total undergraduate experience.

In the 1987 report from the Task Force on Undergraduate Education, the Florida State University System stated that the "establishment of curricula is traditionally, and properly, a faculty responsibility." It endorsed the general principle that every university should offer undergraduate programs designed to develop several attributes of a broadly-educated person but that within these general guidelines each university should develop a program of general education that reflects the specific mission of the institution. The Task Force recommended that each university utilize a committee composed primarily of teaching faculty to consider whether a core curriculum would enhance the educational experience of undergraduate students and to explore the relationship of the institution's general education requirements to its undergraduate majors. Specifically, the Task Force stated:

> Each university within the State University System shall utilize a committee or council predominately composed of teaching faculty to consider whether a core curriculum would enhance the educational experience of undergraduate students, and to explore the relationship of the institution's general education requirements to its undergraduate majors. The committee, which should also involve representatives of the administration and the student body, shall discuss and make recommendations about the undergraduate curriculum. The charge to the committee shall include, but not be limited to, the following:
>
> a. the need to explore ethical issues related to many disciplines;

b. the need to develop research skills, including skills needed in the library and the laboratory;

c. the need to insure that every student gains some real understanding of other cultures, avoiding the temptation to assume that foreign language requirements automatically meet this objective;

d. the obligation to expose students to the applications of computers in their fields of study;

e. the need to extend effective writing well beyond the English classroom into every area of study;

f. the obligation to initiate a regular assessment of individual courses meeting the general education program requirements;

g. the obligation to reexamine the overall general education program, including its underlying principles and rationale, every five to eight years, acknowledging the need to assess changing student goals, changing bodies of knowledge, and our growing understanding of how best to educate a diversified student body.

This recommendation in the SUS Task Force's report is consistent with most of the recent national reports. Many reports encompass additional recommendations and call for specific activities on the part of faculty and students that would provide assurance and demonstration that college students are leaving the undergraduate programs with a broad understanding of the world around them and the ability to integrate their academic coursework in a manner meaningful to their lives.

In summary, the State has undoubtedly made much progress in its insistence on minimal levels of preparation in the basic skills of computation and communication. The State has provided for outcomes measurements with the CLAST examination and process measures with State Board Rule 6A-10.030, FAC, requiring a specific number of hours in English or humanities and mathematics. However, beyond requiring all colleges and universities to develop a core curriculum, no detailed specifications have been set regarding the content, breadth or length of general education requirements or the integration of the totality of the undergraduate experience. As addressed in the Master Plan Update, a crucial problem facing the State is the determination of the appropriate role of state policymakers in affecting curriculum so that a balance is maintained between the responsibility of the State to set policy and provide resources and the responsibility of institutional faculty and administrators to develop and implement quality educational programs.

Transcript Analysis

In 1976, the Carnegie Council on Policy Studies in Higher Education published a study titled Changing Practices in Undergraduate Education designed to investigate the many claims about the changing curriculum in colleges and

universities. The 1976 report involved an in-depth study of the undergraduate curriculum in ten colleges and universities across the country. The study is recognized as one of the first major efforts to conduct a comprehensive transcript analysis. With regard to general education, the study found 22 percent less coursework in general education required in a student's undergraduate program in 1976 than in 1967. More specifically, the study noted that general education requirements have declined since 1967 from 43 percent of the average undergraduate experience to 34 percent at four-year colleges, and from 59 percent to 54 percent at two-year colleges. In terms of content, the authors found a decline in the number of classes in humanities, social sciences, and natural sciences with the decline being most pronounced in the humanities and least pronounced in the natural sciences. The decline in basic coursework in English, mathematics and foreign language requirements was not as great. Over the period of time of the Carnegie study, the average general education requirements in four-year colleges was shown to be comprised of 50 percent required courses, 46 percent distribution courses (courses that belong to a group from which the student has to choose a certain number), and 4 percent free or elective courses. For two-year institutions, the breakdown was 49, 43, and 8 percent respectively.

By 1974, the prescribed proportion of general education courses at four-year institutions had dropped to 28 percent while distribution and elective courses had increased to 54 and 18 percent respectively. The trend was the same for two-year institutions with the percentages reported as 34, 49, and 17 percent. The drop in required courses occurred among 82 percent of the four-year colleges and 75 percent of the two-year colleges. Most changes can be attributed to institutions incorporating more of their general education courses in the distribution category thus providing more choice for students. The Carnegie Council report concluded that transcript analysis is not a process that could be advocated frequently because of its expense and time-consuming nature; however, the report notes that this in-depth analysis does provide an excellent window for the monitoring of actual educational practices.

In 1985, the Southern Regional Education Board completed a transcript analysis which compared teacher education graduates and arts and science graduates. The study involved 6,000 transcripts of college graduates from 17 major institutions in the South. The study concluded that improvements are needed in the general education component of the baccalaureate for all students--teacher education and arts and science graduates alike. The study also found that students majoring in secondary education are not accumulating enough hours in their content majors to match the average of the arts and science counterparts.

A 1987 study of patterns of credit distribution and academic majors sheds light on how these requirements are being met. The study, conducted at the University of Minnesota by Boyer and Ahlgren (1987), found that students in different majors exhibited distinctly different patterns of credit distribution. Since students were found to choose courses more closely related to their area of study, the authors concluded that undergraduate liberal education distribution requirements may have achieved only limited success in ensuring breadth in students' educational experiences.

A more recent transcript study, cited in the January 18, 1989 issue of The Chronicle of Higher Education, was conducted by the Institute for Research on Higher Education at the University of Pennsylvania. This study found little coherence in the structure of liberal arts curricula taken by college students. Ninety percent of the graduates of the 30 institutions in the study had not taken at least three courses in each of three domains: mathematics and the natural sciences, social sciences, and the humanities. The report, "Structure and Coherence: Measuring the Undergraduate Curriculum," which will be released in the Spring 1989 concurs with many of the recent criticisms of undergraduate education. The study provides an extensive analysis of curricula based on the courses students actually take in contrast to the traditional practice of studying curricula based on college catalogs.

The Commission believes that the analysis of student transcripts provides the most accurate description of the actual general education courses taken by students in Florida's public universities and community colleges. It should be noted, however, that although transcript analysis does allow for the actual monitoring of educational practices, it often involves the acceptance of a set of simplifying assumptions about the coding of the collected data. Thus, the findings resulting from a transcript analysis can be distorted to an unknown degree. Methodologically, since the findings of such a study can be highly sensitive to the details of categorization, the criteria for sorting data into categories must be carefully defined. The criteria selected for use in the coding of student transcripts at Florida's public postsecondary institutions is addressed in Chapter IV.

III. THE STUDENT SURVEY

As part of the Commission's study of general education curriculum, a student survey was conducted to obtain the opinions of students in Florida's community colleges and state universities concerning the requirements of the Gordon Rule, the general education core curriculum, and the College-Level Academic Skills Test (CLAST). The student survey was also used to determine if significant differences exist between the perceptions of students in community colleges and those in state universities. This chapter describes the procedure used to collect the data and the survey results.

Student Sample

Five institutions (two universities and three community colleges) were selected to participate in the student survey including: 1) Florida State University, 2) the University of Central Florida, 3) Gulf Coast Community College, 4) Santa Fe Community College, and 5) Valencia Community College.

The characteristics of the student sample are included in Table 3. The majority of students (84.1%) were either freshmen or sophomores. Since students were surveyed randomly at specified locations on campus, no attempts were made to control for student classification or other demographic variables. With the inclusion of three community colleges in the student sample, the large proportion of freshmen and sophomores was expected. As can be seen in Table 3, student grade point average (GPA) was distributed almost symmetrically, with the greatest number of students reporting their approximate GPA as 2.5 or 3.0. The frequencies of student majors were distributed widely among 21 categories. The largest category of students indicated their major was business and management, while the second largest category included students who indicated they were undecided on a major. Other majors representing more than five percent in the student sample were engineering (10.0%), education (8.7%), social sciences (8.7%) and communications (6.5%). The majority of students were white (82.5%), followed by black (9.8%), Hispanic (6.9%), and Asian (.8%). No American Indian or Alaskan native students were reported.

Survey Instrument and Procedures

The survey instrument was developed with the assistance and cooperation of the Florida Student Association. The questionnaire was composed of four major sections. The first section consisted of questions on students' knowledge and opinion regarding the Gordon Rule requirement and its perceived impact on student academic progress. The second and third sections contained questions concerning the students' knowledge and perceptions of the general education core curriculum and the CLAST. The last section contained questions designed to elicit descriptive information as to student classification, grade point average, academic major and race, and these are summarized in Table 3.

Most questions in Sections I-III required a forced choice (e.g., a yes or no response). A few questions included additional choices where it was necessary to clarify the response. Although no opportunities for open-ended responses were provided on the survey instrument itself, some students provided comments

to the Commission staff administering the instrument. Appendix A contains a copy of the survey instrument.

TABLE 3

CHARACTERISTICS OF THE STUDENT SURVEY SAMPLE

Characteristic	Frequency (n=250)	%
Institution		
State University	100	40.0
Public Community College	150	60.0
Major		
Agriculture & Natural Sciences	1	0.4
Biological Sciences	6	2.4
Business and Management	70	28.0
Communications	15	6.0
Computer and Information Sciences	6	2.4
Education	20	8.0
Engineering	23	9.2
Fine and Applied Arts	3	1.2
Health Professions	9	3.6
Home Economics	1	0.4
Law	1	0.4
Letters	6	2.4
Mathematics	1	0.4
Physical Sciences	3	1.2
Psychology	8	3.2
Public Affairs and Sciences	1	0.4
Social Sciences	20	8.0
Interdisciplinary	0	0.0
Philosophy	0	0.0
Visual and Performing Arts	3	1.2
Community Colleges and Undecided	33	13.2
Unreported	20	8.0
Academic Classification		
Freshman	123	49.2
Sophomore	84	33.6
Junior	27	10.8
Senior	12	4.8
Unreported	4	1.6

TABLE 3 (Cont.)

CHARACTERISTICS OF THE STUDENT SURVEY SAMPLE

Characteristic	Frequency (N=250)	%
Grade Point Average		
Below 2.00	1	0.4
2.00	25	10.0
2.50	60	24.0
3.00	91	36.4
3.50	45	18.0
4.00	6	2.4
Unreported	22	8.8
Race		
White Non-Hispanic	203	81.2
Black Non-Hispanic	24	9.6
Hispanic	17	6.8
Asian American/Pacific Islander	2	0.8
American Indian/Alaskan	0	0.0
Unreported	4	1.6

A field test of the survey instrument was conducted by two Commission staff members at Florida State University. As the result of the field test, modifications were made to the survey instrument and the procedures utilized in conducting the survey.

The president or representative of each institution included in the survey was informed that a member of the Commission staff would visit the campus to survey students at random. The students included in the study were selected in a variety of locations on each campus such as the dining hall, student center, the library, or walking to and from class. Fifty surveys were completed for each of the five institutions selected and the total sample included 250 students.

Staff members administering the surveys were asked to give each student or group of students a brief explanation of the purpose of the survey and to define any concepts or terms as needed. The students were asked to respond candidly and to complete the survey without discussing the questions with others. After answering all questions, students were offered the opportunity to comment on any survey topic or specific question asked. The comments made by students to staff members administering the survey are summarized and reported in Appendix B.

Results and Analysis

The survey data were analyzed using the Statistical Package for the Social Sciences, SPSSX (1986). Descriptive statistics such as frequency distributions and percentages for each question and response category were calculated. To further investigate whether differences might exist between the responses of community college and state university students, the surveys were categorized by type of institution and a chi-square statistical procedure was used. The frequency of responses to individual items are addressed in the sections which follow.

Section I -- Gordon Rule Requirement

When asked whether they had ever completed an assignment as a Gordon Rule assignment, 68.8 percent of the students responded "yes" while 31.2 percent said "no." Students answering "yes" to Question 1 were then asked to complete Questions 2 through 8 while those answering "no" were instructed to proceed to Question 9 of the survey.

Question 2 requested the student perceptions of faculty opinions about the Gordon Rule requirements. Sixty-one percent of the students indicated that their faculty had expressed an opinion. When asked whether the opinion had been either positive or negative, a majority of students (53.3%) indicated that the opinion had been negative while 46.7 percent perceived faculty opinion as being positive regarding the Gordon Rule requirements. When the surveys were categorized by type of institution, further analysis of this question yielded a significant difference in the response for community college and state university students. As can be seen in Figure I, community college students overwhelmingly viewed their faculty members as having expressed positive opinions concerning the Gordon Rule while state university students by a similar majority perceived their faculty members as having expressed negative opinions.

Questions 3 and 4 asked if students had enrolled in courses to meet the Gordon requirements that they would not otherwise have taken. With regard to Question 3 and the Gordon writing requirement, 51.2 percent of the students indicated that they had taken courses that they would not normally have taken to fulfill this requirement. As for the mathematics requirement, only 32.8 percent indicated that they had taken additional courses to meet the Gordon math requirements that they would not normally have taken.

In Question 5 students were asked if the requirements imposed by the Gordon Rule have affected their grade point average. Sixty-five percent indicated that the Gordon requirements either had not affected (44.8%) or improved (20.3%) their grade point average, while approximately 35 percent expressed the opinion that the requirements had hindered their grades. When asked in Question 6 whether the Gordon Rule had interfered with their regular coursework, 51.7 percent said "yes" while 48.3 percent indicated that it had not. A more distinctive finding is apparent in Question 6 when the responses are compared by type of institution. As can be seen in Figure 2, a majority of state university students expressed the opinion that the Gordon Rule had interfered with their regular coursework while a similar majority of community college students believed the requirements had not interfered.

FIGURE 1

Question 2-B
Student Perceptions of Faculty Opinions
Regarding The Gordon Rule

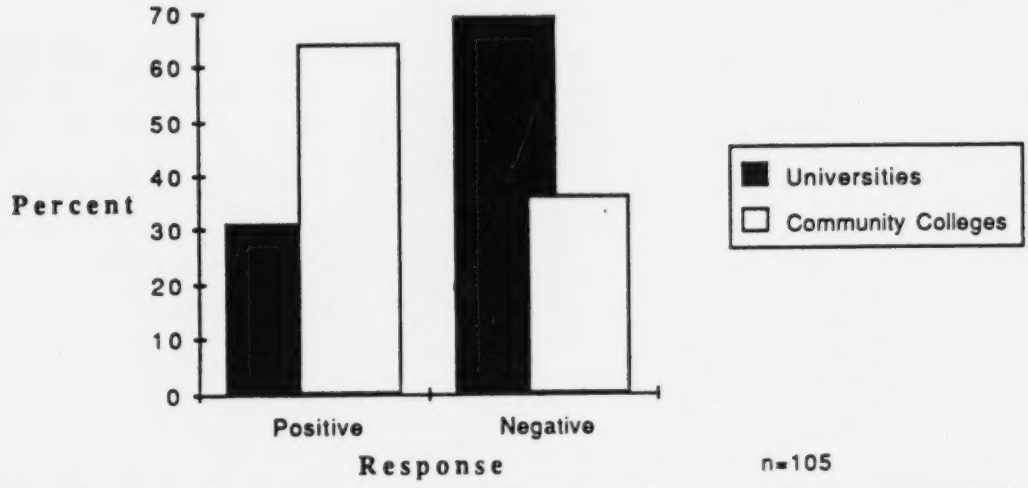
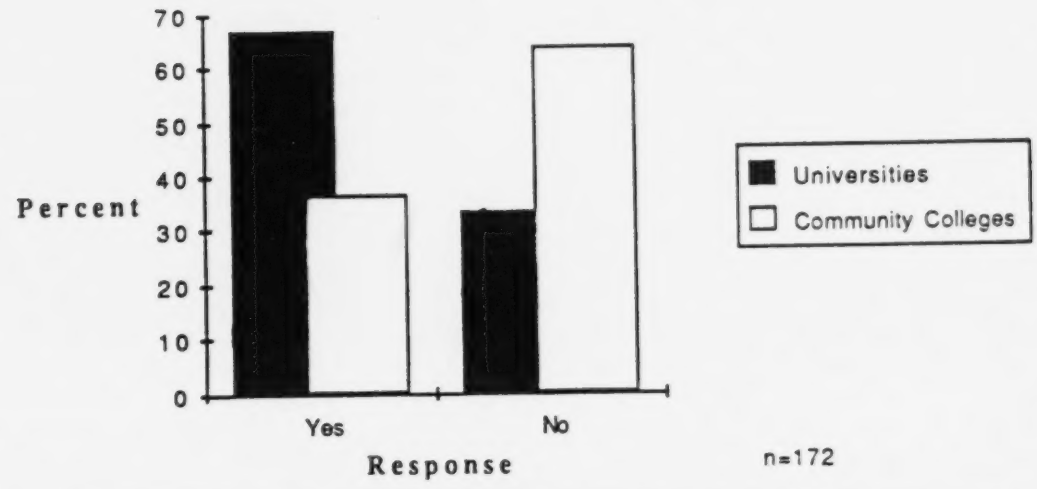


FIGURE 2

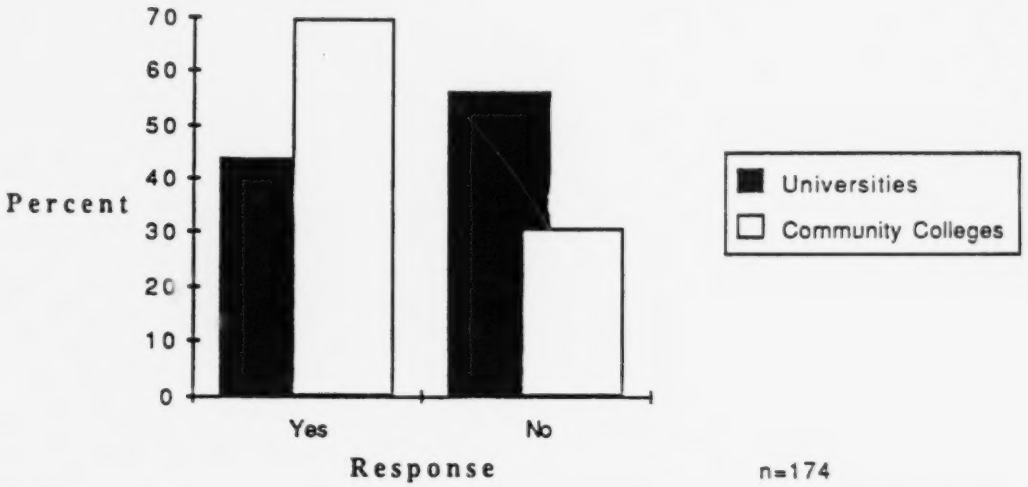
Question 6
Has The Gordon Rule Interfered With Your Regular
Coursework?



Questions 7 and 8 concerned the Gordon Rule's potential impact on students' writing skills and CLAST performance. When asked in Question 7 whether the Gordon Rule writing requirement had improved their writing ability, a majority (56.3%) said that it had. When the responses were examined by type of institution (Figure 3), a majority of the community college students (69.4%) expressed the opinion that it had improved their writing ability, while a majority of university students (56.2%) said it had not helped. The response to Question 8 concerning the impact of the Gordon Rule requirements on student CLAST performance was mixed. Of those who had taken the test (57), a small majority (52.6%) believed that the requirements had not helped them pass the CLAST. One hundred sixteen (116) students (67.1%) indicated that they had not yet taken the CLAST.

FIGURE 3

Question 7
Has The Gordon Rule Writing Requirement Improved Your Writing Skills?



Section II -- General Education Curriculum

Questions 9 through 11 address student awareness of Florida's general education requirement of 36 semester hours and progress toward its completion. Responses to Question 9 concerning student awareness of the minimum 36-hour requirement in general education indicated that most students (66.4%) were aware of this requirement. In terms of student progress toward fulfillment of this requirement, 20.8 percent indicated that they had completed the general education coursework requirement while 73.2 percent stated that they would complete their general education coursework by the end of their sophomore year. Needless to say, the response to this question was heavily influenced

by student classification. As can be expected, freshmen and sophomore students in the sample had not completed the requirements but most stated that they would by the end of their sophomore year, while juniors and seniors had generally completed the general education curriculum requirement.

In terms of the possible impact of the general education curriculum requirement on CLAST performance, a large majority of the students indicated that they had not yet taken the CLAST. Of those who had taken the test, the responses were equally divided between yes and no.

Question 13 through 16 asked students about the value of general education courses. When asked about the quality of assistance they received in identifying and selecting courses to meet the requirements imposed by the institution and the State, a majority of students surveyed (59.6%) believed that the information they received from their advisors was useful. When asked in Question 14 if general education coursework contributed to their personal development, 66.8 percent responded "yes." Similarly, when asked in Question 16 if skills or knowledge acquired through the general education curriculum had been helpful in later coursework, 66.4 percent stated that they had gained useful knowledge or skills. The responses to both Questions 14 and 16 represent a positive expression of the value of the general education curriculum. No difference in the direction of the responses was observed when the sample was analyzed by community colleges and state universities. Yet, in Question 15, a large majority of students (73.6%) expressed a desire for more coursework in their majors and less in general education. This finding is consistent with national studies which have shown that college students desire more coursework in their majors.

Section III -- CLAST

Question 17 asked students if they thought the State should require students to pass the CLAST before they are eligible to obtain an associate of arts degree or enter the upper division. Approximately 43 percent of the students responded "yes" while 32.4 percent said "no." Approximately 21 percent either did not know or failed to respond to the question. No difference by type of institution was observed for this question.

Question 18 asked students how well their coursework had prepared them for the CLAST. Of those students responding to this question who had taken the CLAST (69 students), 53 percent indicated that there were items on the CLAST for which their coursework had not prepared them. The overwhelming majority of students (72.4%) either responded that they had not yet taken the CLAST (67.2%) or chose not to answer the question (5.2%).

At some institutions, computer science courses such as those in basic programming may be used to fulfill the Gordon Rule mathematics requirement. When asked in Question 19 if these courses had been helpful in completing the math portion of the CLAST, a majority of those students in this category who had completed the CLAST (37 students) indicated that computer science courses had not been helpful. As in Question 18, a large majority of students (78.8%) either had not completed CLAST or had not used computer science courses to meet the institution's Gordon Rule mathematics requirement.

To further analyze the response difference between students by type of institution, a chi-square analysis was conducted to determine if statistically significant differences existed in the "yes" or "no" responses of state university and community college students. As can be seen in Table 4, significant differences were found to exist in the responses of the two groups for six of the 19 questions contained in this survey.

TABLE 4

CHI-SQUARE VALUES FOR QUESTIONS 1-19 BY TYPE OF INSTITUTION

	Item	Chi-Square Value	Significant
1.	Completed Gordon Assignment	24.32	*
2.	(a) Professor's Expressed Opinion	0.42	
	(b) Opinion Direction	10.23	*
3.	Additional Writing Courses	1.12	
4.	Additional Math Courses	4.62	*
5.	Affected Your GPA	0.66	
6.	Interfered With Coursework	14.51	*
7.	Improved Writing Skills	10.56	*
8.	Help Pass CLAST	1.98	
9.	Aware of General Education Requirement	0.11	
10.	Fulfilled General Education Requirement	7.21	*
11.	Completed by Sophomore Year	1.21	
12.	General Education Courses Helped on CLAST	0.69	
13.	Student Advisors Helpful	0.31	
14.	Contributed to Personal Development	2.52	
15.	More Credit Hours in Major	0.64	
16.	Acquired Knowledge or Skills	0.73	
17.	Should CLAST be Required	0.52	
18.	Coursework Prepared You for CLAST	0.60	
19.	Computer Science Courses Helpful	0.00	

* .05 level of significance

Summary

The student survey was conducted to gain insight on student opinions concerning the Gordon Rule, the 36-hour core curriculum, and CLAST performance. An analysis of the results showed that community college students included in the sample were more supportive of Gordon Rule writing requirements than students in state universities. Also, community college students perceived that faculty were positive toward the Gordon Rule writing requirements while state university students perceived that faculty were negative toward this requirement. A majority of community college students stated that the Gordon Rule writing requirements had improved their writing ability while a majority of university students expressed the opinion that the

Gordon Rule had not helped to improve their writing skills. While most students stated that general education requirements were helpful, most added that they would have preferred to take more courses in their major. These responses were characteristic of both community college and state university students.

Since the sample used for this student survey was relatively small, any generalizations to the larger population of students attending state universities and community colleges in Florida should be made with caution. Similarly, although statistically significant differences in the opinions or responses of state university and community college students were found to exist for several questions, any attempt to control for such factors as different levels of academic ability, varied institutional policies and procedures, or types of assignments given to the students was beyond the scope of this survey. Instead, the student survey was intended to provide information on student opinions concerning the three general education requirements presented in the instrument, and to suggest areas which may warrant further investigation as a part of the Commission's assessment of the general education curriculum in Florida's state universities and community colleges.

IV. THE TRANSCRIPT ANALYSIS

The 1988 Master Plan Update recommended that an assessment of the current status of the general education curriculum would provide useful information regarding the impact of the State's efforts to improve undergraduate education and that such a study should be conducted by the Commission in cooperation with the State Board of Community Colleges and Board of Regents. The current study was subsequently mandated by the 1988 Legislature. The major vehicle for the assessment of the general curriculum in Florida's public universities and community colleges was a transcript analysis which examined the actual coursework which composes the general education curriculum in Florida public postsecondary institutions; identified how Gordon Rule (SBER 10.030, FAC) requirements are being met; and determined the differences which exist in the general education coursework by major and type of institution.

Research has shown that transcript studies similar to the one conducted by the Commission have utilized at least 1,800 transcripts. For the purposes of this study, a sample of 2,400 transcripts (300 transcripts from each university and 200 from each community college) selected randomly had been proposed in the study outline. When the Commission staff began the transcript coding process, however, staff found the process to be highly cumbersome, slow, and subject to errors in coding. Approximately five transcripts per hour were being coded manually by three different staff members.

During the initial phase of the coding process, it was brought to the Commission's attention that state university and community college transcripts would be on-line in a computerized network within the next 18-24 months through the Student Record Transcript System. Because of the capability of this emerging on-line transfer system, it was determined that a modified project involving 1,260 transcripts should be undertaken by the Commission as a pilot study in 1988-89 to comply with the legislative charge. A more comprehensive transcript analysis could be conducted once the transcripts of all state university and community college students were computerized in 1990-91. The potential for human error possible in a manual transcript coding process would be reduced significantly once the transcripts are coded electronically.

The ten institutions included in this study were selected to represent the various geographic regions of the State and a broad range in the size of the student body. Four state universities and six community colleges were included: Florida State University, the University of Central Florida, the University of South Florida, Florida International University, Santa Fe Community College, Gulf Coast Community College, Broward Community College, St. Petersburg Junior College, Valencia Community College, and Pasco-Hernando Community College.

State university transcripts were obtained through the Board of Regents for the four state universities and directly from the community colleges included in the sample. One hundred fifty (150) transcripts for each state university and 110 transcripts for each community college were selected randomly.

To assure as much consistency as possible in the selection of transcripts, the following guidelines were established. First, transcripts were selected randomly for those students who completed the general education requirements

TABLE 5

NUMBER OF TRANSCRIPTS PER INSTITUTION

State Universities	Total
Florida State University	150
University of Central Florida	150
University of South Florida	150
Florida International University	150
Total State Universities	**600**
Community Colleges	
Santa Fe Community College	110
Gulf Coast Community College	110
Broward Community College	110
St. Petersburg Junior College	110
Valencia Community College	110
Pasco-Hernando Community College	110
Total Community Colleges	**660**
Total Number of Transcripts	**1,260**

of the freshman and sophomore years between Fall 1984 and Fall 1987. Second, students who transferred into the community college or state university were excluded on the basis that these students might have fulfilled the requirements differently at another institution. Third, only those students who had taken CLAST and had CLAST scores recorded on their transcripts were included. Thus, transcripts were obtained of community college students who had received the associate of arts degree and state university students who were currently enrolled as upper division students.

The award of the associate of arts degree was used as the point of reference to end course coding on the community college transcripts. Most state university transcripts did not have the associate of arts degree for a point of reference to complete coding. Since no clear point of reference existed on state university transcripts to signify the completion of the sophomore year, coding included courses up to and including the semester in which the student completed the 60th semester hour. This point of reference was established since state university students were required, during the time period from which transcripts were sampled, to take the CLAST upon completing at least 60 semester hours and prior to being admitted to upper division.

The transcript coding process was conducted using the 1,260 transcripts which filled the above guidelines. Each institution was asked to provide information on the institution's general education and Gordon Rule requirements. Transcripts were coded according to course requirement information provided by the institution. The coding included consideration of special institutional requirements used to satisfy the Gordon Rule such as CLEP, advanced placement, departmental examinations, or individual contracts.

Courses were classified into one of five general education categories -- English, mathematics, humanities, social sciences, and natural sciences. Courses which could not be classified into these five categories were placed in an "other" category. The "other" category also included courses in majors such as education, engineering or business as well as courses which reflect unique institutional requirements (e.g., a required ethics course at St. Petersburg Junior College) or elective courses outside the five general education categories. In addition, a few institutions participating in the study chose to place certain courses in the "other" category (e.g., independent study courses at Valencia Community College). These general education categories are defined in Table 6. It should be noted that there was some variation among institutions as to categorization of some coursework.

Each transcript was coded for several variables to ensure that the subsequent analyses would be meaningful and provide a comprehensive assessment of the general education coursework and Gordon Rule requirements taken by students. Each transcript was coded for the following variables:

- Institution Type - community college or state university
- Social security number (if available) NOTE: For reasons of confidentiality, a few institutions deleted social security numbers from the transcripts.
- Age and sex of student
- Residency (Florida Resident, Non-resident, Non-U.S. Resident)
- SAT - Verbal and Quantitative
- CLAST - Math, Reading, Writing, Essay Scores; Date taken
- Date first enrolled at institution
- College Prep - English, math, both
- Total English hours (including Gordon courses)
- Total mathematics hours (including Gordon courses)
- Total humanities hours
- Total social science hours
- Total natural science hours
- Total other hours
- Gordon Rule requirements met including recognition of institutional variations in requirements. (If not, deficiencies were coded.)
- Grades in each course for the above categories of coursework, GPA by category, GPA for Gordon English and mathematic courses, and overall GPA
- Student academic major
- Date last enrolled at institution
- Graduate (Yes or No)

It is important to note that the transcript analysis has several limitations. First, if a student took the CLAST more than once, only the most recent CLAST scores are included on the transcript. Second, an audited course would not appear on the transcript. If a student audited a course and later enrolled in the same course for credit, the credit course would be the only one to appear on the transcript. Third, all ten institutions have implemented a forgiveness policy which allows the student to retake a course in which a D or F grade had been earned. Although both grades appear on a transcript, the first grade is identified with the letter "t" and only the second grade is counted in the student's GPA; the first grade was "forgiven." Some institutions have set

TABLE 6

COURSEWORK INCLUDED IN GENERAL EDUCATION CATEGORIES

Category	Coursework Included
English	English Composition Speech Communication Creative Writing
Mathematics	Mathematics, Algebra, Calculus and Precalculus, Statistics, Computer Science/ Computer Engineering/Information Sciences
Natural Sciences	Biological Sciences, Chemistry, Geology Geography, Meteorology, Oceanography, Physics
Humanities	Humanities Art/Music/Dance/Theatre History and Appreciation American and Afro-American Studies Philosophy, Religion Literature, Foreign Language Literature (for example French Literature)
Social Sciences	Sociology, Psychology Economics, Political Sciences History, Anthropology
Other	"Applied" courses from humanities and social sciences which are "vocational" in nature such as studio courses in art and dance, teacher preparation, or study and reading skills. Also includes: Applied Music, Theatre Arts Developmental Psychology Student Life Skills Modern Foreign Languages: Competency Based Physical Education

limitations or restrictions on the number of grades per course or number of courses which can be forgiven. For example, Florida State University allows a student to have grades forgiven for only two courses. Certain institutions allow a "C" grade to be forgiven as well. Table 7, which is contained in the next several pages, provides information on the characteristics of the 1,260 students included in the sample.

TABLE 7

CHARACTERISTICS OF THE STUDENT TRANSCRIPT SAMPLE
Number of Students = 1,260

Sex

	Frequency	%
Male	518	41.1
Female	742	58.9

Resident Status

	Frequency	%
FL	836	66.3
Non-FL	177	14.1
Non-US	39	3.1
Unreported	208	16.5

Age

	Frequency	%
18	6	0.5
19	70	5.6
20	393	31.2
21	564	44.7
22	115	9.1
23-25	49	3.9
over 25	60	4.8
Unreported	3	0.2

College Preparatory

	Frequency	%
English only	58	4.6
Math only	43	3.4
Both English and Math	13	1.0
Reading	10	0.8
None	1136	90.2

Credit by Examination

	Frequency	%
CLEP	62	4.9
Advanced Placement	55	4.4
None	1143	90.7

TABLE 7 (Cont.)

CHARACTERISTICS OF THE STUDENT TRANSCRIPT SAMPLE

A.A. Degree Received

	Frequency	%
No	531	42.2
Yes	729	57.8

Overall Grade Point Average

Range	1.67-4.0
Average	2.96

	Frequency	%
3.51 to 4.00	202	16.0
3.01 to 3.50	359	28.5
2.51 to 3.00	482	38.3
2.00 to 2.50	207	16.4
Below 2.00	10	0.8

Major

	Frequency	%
Biological Sciences	40	3.2
Business & Management	228	18.1
Communications	45	3.6
Computer & Information Sciences	44	3.5
Education	72	5.7
Engineering	81	6.4
Fine & Applied Arts	23	1.8
Health Professions	37	2.9
Home Economics	8	0.6
Law	4	0.3
Letters	23	1.8
Mathematics	5	0.4
Physical Sciences	9	0.7
Psychology	41	3.3
Public Affairs & Sciences	6	0.5
Social Sciences	64	5.1
Interdisciplinary	1	0.1
Philosophy	1	0.1
Undecided	72	5.7
Visual Arts	10	0.8
Unreported	446	35.4

TABLE 7 (Cont.)

CHARACTERISTICS OF THE STUDENT TRANSCRIPT SAMPLE

SAT Verbal

Range of Scores	240-730
Average Score	466

Score	Frequency	%
Greater than 600	29	2.3
551 to 600	53	4.2
501 to 550	113	9.0
451 to 500	155	12.3
401 to 450	153	12.1
350 to 400	91	7.2
Less than 350	44	3.5
SAT Score not on Transcript	622	49.4

SAT Quantitative

Range of Scores	270-750
Average Score	523

Score	Frequency	%
Greater than 600	97	7.7
551 to 600	113	9.0
501 to 550	161	12.8
451 to 500	147	11.6
401 to 450	79	6.3
350 to 400	28	2.2
Less than 350	13	1.0
SAT Score not on Transcript	622	49.4

SAT Total

Range of Scores	570-1,400
Average Score	989

Score	Frequency	%
Greater than 1200	36	2.9
1101 to 1200	80	6.3
1001 to 1100	175	13.9
901 to 1000	186	14.8
801 to 900	114	9.0
700 to 800	32	2.5
Less than 700	15	1.2
SAT Score not on Transcript	622	49.4

TABLE 7 (Cont.)

CHARACTERISTICS OF THE STUDENT TRANSCRIPT SAMPLE

CLAST Writing

Range of Scores	249-413
Average Score	322
Passing Score	
8/84 to 7/86	265
8/86 to 7/89	270

Score	Frequency	%
Above 410	0	0.0
391 to 410	15	1.2
371 to 390	53	4.2
351 to 370	150	11.9
331 to 350	223	17.7
311 to 330	375	29.7
291 to 310	307	24.4
271 to 290	131	10.4
251 to 270	6	0.5
231 to 250	0	0.0
230 or Below	0	0.0

CLAST Reading

Range of Scores	249-413
Average Score	322
Passing Score	
8/84 to 7/86	265
8/86 to 7/89	270

Score	Frequency	%
Above 410	3	0.2
391 to 410	10	0.8
371 to 390	41	3.3
351 to 370	85	6.7
331 to 350	273	21.7
311 to 330	410	32.5
291 to 310	293	23.3
271 to 290	135	10.7
251 to 270	8	0.6
231 to 250	2	0.2
230 or Below	0	0.0

CLAST Math

Range of Scores	258-432
Average Score	318
Passing Score	
8/84 to 7/86	260
8/86 to 7/89	275

Score	Frequency	%
Above 395	9	0.7
376 to 395	15	1.2
356 to 375	58	4.6
336 to 355	168	13.3
316 to 335	386	30.6
296 to 315	397	31.5
276 to 295	212	16.9
256 to 275	15	1.2
236 to 255	0	0.0
235 or Below	0	0.0

CLAST Essay

Range of Scores	0-8
Average Score	5
Passing Score	
to 7/89	4

Score	Frequency	%
0	1	0.1
2	4	0.3
4	327	26.0
5	365	29.0
6	333	26.4
7	177	14.0
8	53	4.2

Note: CLAST scores taken from transcripts represent final scores.

Catalog Analysis

For comparison, an analysis was conducted of the college catalogs of the 10 institutions represented in the sample. The catalog analysis was used to identify the number of general education core curriculum semester hours required in the five categories of general education coursework as well as the "other" category. The catalog analysis was also used to identify Gordon Rule hours, including requirements at institutions which have an alternative plan to satisfy the Gordon Rule requirements as approved by the State Board of Education. The results of this analysis were compared and verified with the information provided by each institution regarding general education and Gordon Rule requirements. Discrepancies were resolved by telephone calls to individual institutions.

The results of the catalog analysis for the 10 institutions are contained in the following two tables (Tables 8 and 9). It should be noted that each institution was in compliance with the 36-semester hour general education core curriculum requirement and in fact, the catalogs of several institutions contained requirements for more than 36 semester hours in general education courses. Also, each of the 10 institutions had academic policies that met the Gordon Rule requirement of 12 hours of communications and six hours on mathematics. Three institutions (Florida State, Santa Fe and St. Petersburg) exceeded the 12-hour requirement in communications. Four institutions (Florida State, Sante Fe, St. Petersburg and Broward) had alternate plans for meeting the Gordon Rule approved by the State Board of Education. Alternative plans for meeting the Gordon Rule were described in Chapter II.

General Education Hours Actually Taken

As previously stated, each transcript was analyzed for the total number of semester hours taken by lower division state university students and community college students. The results of this analysis displayed by average hours taken in each discipline category and by total general education hours taken are contained in Table 10.

A t-test statistical procedure was utilized to determine whether any significant differences existed between community college and state university students for the mean hours taken in each discipline category (See Table 11). When comparing community colleges to state universities, statistically significant differences were found for all disciplines except natural sciences. The results showed that, on the average, state university students completed significantly more coursework in humanities and social sciences while community college students, on the average, completed significantly more coursework in English, mathematics, and the "other" category.

TABLE 8

GENERAL EDUCATION CORE CURRICULUM REQUIREMENTS BY INSTITUTION
BASED ON CATALOG ANALYSIS

	INSTITUTION	ENGLISH	MATH	NATURAL SCIENCE	HUMANITIES	SOCIAL SCIENCE	OTHER	TOTAL GENERAL EDUCATION HOURS
1.	**FLORIDA STATE UNIVERSITY**							
	General Education Hours Required	6	6	10	9	15	3	49
2.	**UNIVERSITY OF SOUTH FLORIDA**							
	General Education Hours Required	6	6	6	6	6	10	40
3.	**UNIVERSITY OF CENTRAL FLORIDA**							
	General Education Hours Required	9	6	7	9	9	0	40
4.	**FLORIDA INTERNATIONAL UNIVERSITY**							
	General Education Hours Required	6	6	8	9	9	0	38
5.	**BROWARD COMMUNITY COLLEGE**							
	General Education Hours Required	6	6	7	6	6	9	40
6.	**GULF COAST COMMUNITY COLLEGE**							
	General Education Hours Required	6	6	7	9	12	0	40
7.	**PASCO-HERNANDO COMMUNITY COLLEGE**							
	General Education Hours Required	9	7	9	6	9	0	40
8.	**SANTA FE COMMUNITY COLLEGE**							
	General Education Hours Required	9	6	8	10	9	3	45
9.	**ST. PETERSBURG JUNIOR COLLEGE**							
	General Education Hours Required	9	6	10	6	6	3	40
10.	**VALENCIA COMMUNITY COLLEGE**							
	General Education Hours Required	9	6	6	9	6	0	36

TABLE 9

GORDON RULE REQUIREMENTS BY INSTITUTION BASED ON CATALOG ANALYSIS

	INSTITUTION	ENGLISH	MATH	HUMANITIES	SOCIAL SCIENCE	OTHER	TOTAL GORDON RULE HOURS COMMUNICATIONS / MATH	
1.	**FLORIDA STATE UNIVERSITY** *							
	Gordon Rule Hours Required	6	6	9	6		21	6
2.	**UNIVERSITY OF SOUTH FLORIDA**							
	Gordon Rule Hours Required	6	6	0-6	0-6		12	6
3.	**UNIVERSITY OF CENTRAL FLORIDA**							
	Gordon Rule Hours Required	6	6	6			12	6
4.	**FLORIDA INTERNATIONAL UNIVERSITY**							
	Gordon Rule Hours Required	6	6	6			12	6
5.	**BROWARD COMMUNITY COLLEGE** *							
	Gordon Rule Hours Required	6	6	6			12	6
6.	**GULF COAST COMMUNITY COLLEGE**							
	Gordon Rule Hours Required	6	6	6			12	6
7.	**PASCO-HERNANDO COMMUNITY COLLEGE**							
	Gordon Rule Hours Required	6	6	6			12	6
8.	**SANTA FE COMMUNITY COLLEGE** *							
	Gordon Rule Hours Required	9	6	4	6		19	6
9.	**ST. PETERSBURG JUNIOR COLLEGE** *							
	Gordon Rule Hours Required	6	6	6	3	3	18	6
10.	**VALENCIA COMMUNITY COLLEGE**							
	Gordon Rule Hours Required	6	6	6			12	6

* Have alternative plans approved by the State Board of Education.

TABLE 10

AVERAGE TOTAL NUMBER OF HOURS TAKEN BY
LOWER DIVISION AND COMMUNITY COLLEGE STUDENTS
AS SHOWN BY TRANSCRIPT ANALYSIS

	Average Total Hours	English	Mathematics	Natural Science	Social Science	Humanities	Other
State Universities							
Florida State University	61.2	6.2	8.8	10.6	9.8	7.5	18.3
University of South Florida	61.7	7.0	8.9	11.6	14.2	9.3	10.6
University of Central Florida	69.8	6.0	10.5	8.6	12.1	10.2	22.4
Florida International University	62.5	6.7	9.4	10.0	12.0	16.7	7.6
Average for State Universities	63.8	6.5	9.4	10.2	12.0	10.9	14.7
Community Colleges							
Broward Community College	68.4	6.4	8.2	9.6	8.2	7.2	28.9
Gulf Coast Community College	71.2	6.2	8.6	8.9	12.0	9.5	26.0
Pasco-Hernando Community College	63.3	9.2	11.9	11.2	13.0	6.0	12.0
Santa Fe Community College	70.9	9.3	11.2	11.9	12.4	12.4	13.8
St. Petersburg Junior College	72.3	9.1	11.9	11.6	9.9	6.0	23.8
Valencia Community College	64.5	11.2	12.6	9.7	10.9	11.0	9.1
Average for Community Colleges	68.4	8.5	10.7	10.5	11.1	8.7	18.9
Average for 10 Institutions	66.2	7.6	10.1	10.4	11.5	9.7	16.9

TABLE 11

COMPARISON OF MEAN SEMESTER HOURS TAKEN IN GENERAL EDUCATION COURSES

Discipline	Mean+ Hours Taken		Standard++ Deviation		T Value	Significant
	Univ. Students	Community College Students	Univ. Students	Community College Students		
English	6.5	8.5	2.1	2.6	15.3	*
Mathematics	9.4	10.7	4.5	4.6	5.1	*
Humanities	10.9	8.7	6.8	3.4	7.6	*
Social Science	12.0	11.1	6.1	3.7	3.4	*
Natural Science	10.2	10.5	6.9	5.5	0.8	
Other	14.7	18.9	11.8	10.6	6.7	*

* .05 level of significance

\+ Mean is defined as the average score.
++ Standard Deviation is defined as the spread or distribution of scores around the mean.

SAT and CLAST SCORES BY INSTITUTION TYPE

As can be seen in Table 12, the mean SAT scores for students in state universities and community colleges varied considerably. Overall, university students had better scores on both subtests of the SAT. While the same trend was also present for all CLAST subtests, the difference between community college and state university mean scores was not as pronounced. Mean scores for SAT and CLAST tests were compared by institution type and statistically significant differences were found between community college and state university students for both tests. One explanation for the difference in CLAST performance is the variation in academic ability when stuents enter a postsecondary institution as evidenced by SAT scores.

To further examine the differences in CLAST scores by institutional type and the possible effect of variation in entering academic ability among students on the results, the SAT score was used in an analysis of variance procedure as a covariate. This statistical procedure was applied to determine if statistically significant differences would continue to exist between the CLAST subtest scores of community college and state university students after eliminating the potential effect entering academic ability of students had on the outcome. The SAT verbal score was used in an attempt to control for the effect of a student's entering ability on CLAST reading, writing, and essay

performance. Similarly, the SAT math score was used in an attempt to control for the effect of a student's entering ability on CLAST math performance. Since only 547 state university and 91 community college transcripts contained SAT scores, the sample size for this analysis was limited.

TABLE 12

COMPARISON OF MEAN SAT AND CLAST TEST SCORES BY INSTITUTION TYPE

Test or Subtest	Mean Score		Standard Deviation		T Value	Significant
	Univ.	Community College	Univ.	Community College		
SAT Total	1009.1	867.1	123.4	126.5	10.1	*
SAT Verbal	476.1	405.5	76.3	82.2	8.1	*
SAT Math	533.0	461.6	74.8	76.6	8.4	*
CLAST Reading	325.8	317.8	25.7	26.7	5.4	*
CLAST Writing	328.6	319.2	27.0	26.8	6.2	*
CLAST Math	320.1	315.3	24.1	23.5	3.6	*
CLAST Essay	5.5	5.3	1.2	1.1	4.2	*

* .05 level of significance

As can be seen in Table 13, after adjusting the scores to control for variations in the entering academic ability between community college and university students, the analysis of variance procedure revealed a significant difference in CLAST performance by institution type for the math subtest only. In other words, once differences in the entering academic ability of students were controlled, the adjusted CLAST math score for community college students was significantly higher than the CLAST math scores for state university students. In contrast, having controlled for the differences in the entering academic ability, the adjusted CLAST reading, writing, and essay scores no longer showed significant differences between the state university and community college students.

TABLE 13

ANALYSIS OF VARIANCE BY INSTITUTION TYPE FOR CLAST SUBTEST SCORES USING SAT AS A COVARIATE

CLAST Subtest	Adjusted Mean Scores: Univ. Students	Adjusted Mean Scores: Community College Students	F Ratio	Significant
Reading	324.7	324.6	0.003(1)	
Writing	327.3	329.3	0.422(1)	
Math	319.0	329.9	24.4(2)	*
Essay	5.5	5.6	0.524(1)	

* .05 level of significance

(1) using SAT Verbal score as a covariate
(2) using SAT Quantitative score as a covariate

Grade Distributions

Grades on each transcript were coded as A, B, C, D, F or other grade (pass/fail; S/U). Grade frequencies and distributions for all transcripts are shown in Table 14. Grade distribution by type of institution follows in Table 15.

Figures 4 and 5 graphically illustrate the differences in the grade distribution for letter grades in community colleges and state universities. As can be seen, community college grades peaked at 38 percent for A's, followed sequentially by B's (36%), C's (21%), D's (3%) and F's (1%). As expected, the percentages of D's and F's in mathematics and the natural sciences were higher than in the other general education categories.

TABLE 14

GRADE FREQUENCY AND DISTRIBUTION
FOR ALL TRANSCRIPTS

GENERAL ECUCATION CATEGORY	GRADE A	B	C	D	F	OTHER GRADE	TOTAL GRADES
English	858	1444	745	34	5	99	3,185
PERCENT	26.9	45.3	23.4	1.1	.2	3.1	
Math	1128	1354	1141	181	65	148	4,017
PERCENT	28.1	33.7	28.4	4.5	1.6	3.7	
Humanities	1360	1525	743	63	32	202	3,925
PERCENT	34.7	38.9	18.9	1.6	.8	5.1	
Social Science	1431	1862	1239	234	19	65	4,850
PERCENT	29.5	38.4	25.5	4.9	.4	1.3	
Natural Science	1248	1777	1432	253	46	63	4,819
PERCENT	25.9	36.9	29.7	5.2	1.0	1.3	
Other	3470	2821	1473	233	52	355	8,404
PERCENT	41.3	33.6	17.5	2.8	.6	4.2	
TOTAL	9,495	10,783	6,773	998	219	932	29,200
PERCENT	32.5	36.9	23.2	3.4	0.8	3.2	

TABLE 15

GRADE DISTRIBUTION BY INSTITUTION TYPE

INSTITUTION TYPE	GRADE A	B	C	D	F	OTHER GRADE	TOTAL GRADES
Community College Grades	6108	5829	3441	415	75	246	16,114
PERCENT	37.9	36.2	21.4	2.6	.4	1.5	
State University Grades	3387	4954	3332	583	144	686	13,086
PERCENT	25.8	37.9	25.5	4.5	1.1	5.2	

FIGURE 4

GRADE DISTRIBUTION

FOR COMMUNITY COLLEGES

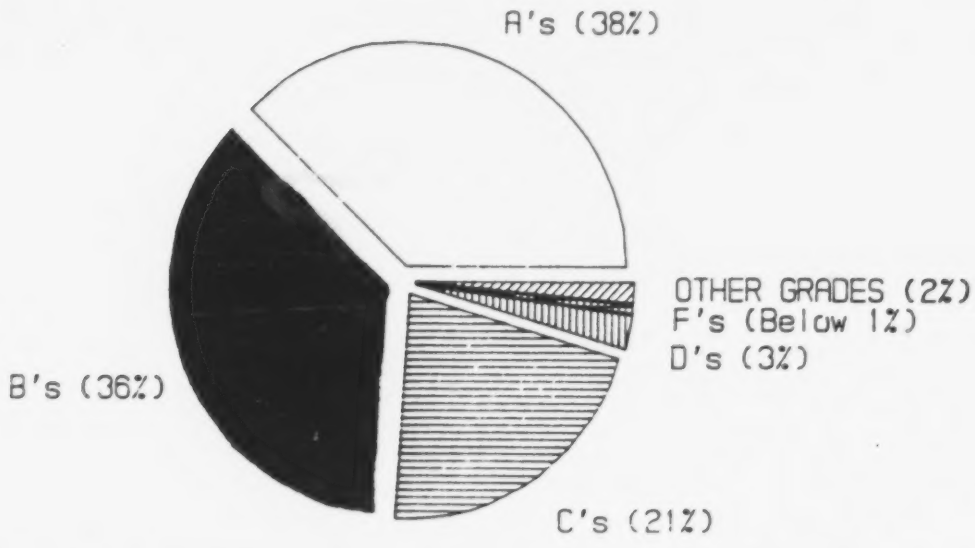
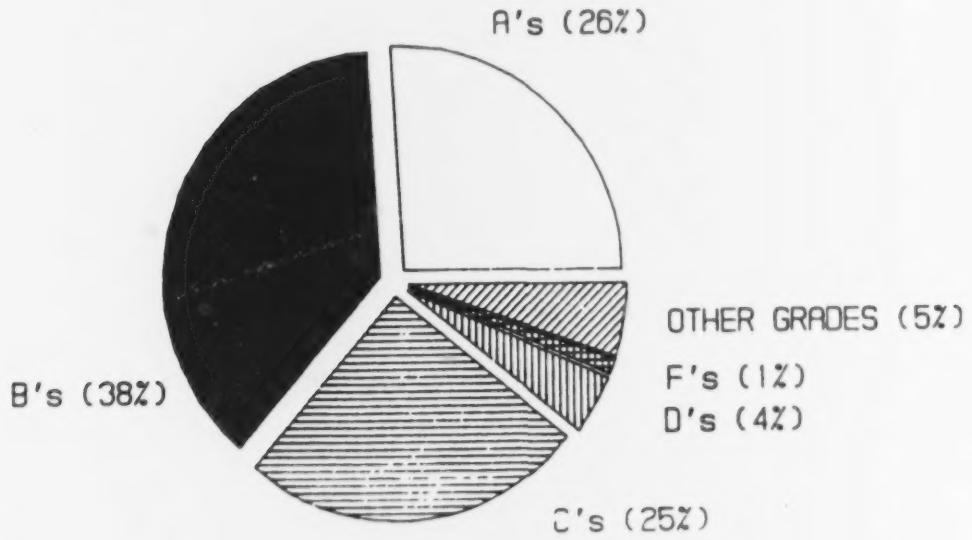


FIGURE 5

GRADE DISTRIBUTION

FOR STATE UNIVERSITIES



University grades formed a symmetrically shaped distribution among the A's, B's and C's; however, community college grades did not show this same pattern. Since the distribution shapes formed by these two groups were so disparate, the Wilcoxin-Mann-Whitney Test was selected to determine if statistically significant differences existed between state university and community college students for each grade category. This test was selected as it is more tolerant of non-normal distributions. As can be seen in Table 16, statistically significant differences were found to exist between community college and university students for each letter grade.

TABLE 16

ANALYSIS OF DIFFERENCES FOR LETTER GRADES BY INSTITUTION TYPE USING THE WILCOXIN-MANN-WHITNEY TEST

Grade	Mean Per Transcript		Standard Deviation		Z Value	Significant
	Univ. Students	Community College Students	Univ. Students	Community College Students		
A	5.6	9.2	4.4	6.0	-11.8	*
B	8.3	8.8	3.2	3.4	- 3.6	*
C	5.5	5.2	3.8	4.0	- 2.0	*
D	1.0	0.6	1.4	1.1	- 4.5	*
F	0.2	0.1	0.6	0.4	- 4.4	*
Other	1.1	0.3	1.7	0.9	-11.1	*

* .05 level of significance

Comparisons For College Preparatory Students

Florida statute requires that students scoring below a certain score on the SAT, ACT, ASSET, or MAPS subtests in mathematics or communication enroll in a college preparatory remedial program. For the Scholastic Aptitude Test (SAT), the State has set the minimum passing scores at 340 for the verbal section and 400 for the quantitative section of the test. Table 17 includes the results of a comparison of SAT scores for regular students and those in enrolled in college preparatory coursework. As expected, a comparison of the means revealed that college preparatory students scored significantly lower on each subtest of the SAT when compared to students enrolled in non-college preparatory (regular credit) courses. However, because many transcripts did not contain SAT scores and few students could be identified as college preparatory students, it should be noted that the sample size for this analysis was small. Of the 638 students with SAT scores on their transcripts, only 22 could be categorized as college preparatory students.

TABLE 17

COMPARISON OF MEAN SAT SCORES FOR COLLEGE PREPARATORY STUDENTS

Test	Mean Score		Standard Deviation		T Value	Significant
	Non-College Prep Students	College Prep Students	Non-College Prep Students	College Prep Students		
SAT Total	993.7	854.5	131.0	130.2	4.9	*
SAT Verbal	469.5	368.6	79.5	59.7	5.9	*
SAT Math	524.1	485.9	77.6	108.8	2.2	*

* .05 level of significance

To further compare the performance of college preparatory students with other students, CLAST subtest scores were examined. CLAST reading, writing and essay scores for non-college preparatory (regular) students were compared to the CLAST scores of students enrolled in college preparatory English. Similarly, CLAST math scores for non-college preparatory students were compared to scores for students enrolled in college preparatory math courses. For the purposes of this analysis, 1,136 students were identified as non-college preparatory, 81 were enrolled in some college preparatory English coursework, while 56 were enrolled in some college preparatory math coursework. Table 18 illustrates the means and standard deviations of the CLAST scores for the groups. The trend observed between the groups for SAT scores appeared to be present for CLAST scores as well. College preparatory students scored almost one standard deviation lower than non-college preparatory students on CLAST reading, writing and math subtests and considerably lower on the essay subtest. A statistical comparison of the differences between the means using a t-test procedure indicated the existence of significant differences for all scores as grouped. For all four subtests, students enrolled in college preparatory courses scored significantly lower on the respective CLAST subtests than students not enrolled in college preparatory courses.

TABLE 18

COMPARISON OF MEAN CLAST SCORES FOR COLLEGE PREPARATORY AND NON-COLLEGE PREPARATORY STUDENTS

Comparison	Mean Score		Standard Deviation		T Value	Significant
	Regular Students	College Preparatory Students	Regular Students	College Preparatory Students		
CLAST Reading	323.1	300.5	26.3	19.6	-7.56	*
CLAST Writing	325.3	303.9	27.3	22.1	-6.95	*
CLAST Math	319.0	303.9	24.0	18.2	-4.67	*
CLAST Essay	5.4	4.8	1.1	1.3	-4.91	*

* .05 level of significance

Comparisons for Resident Status

Where possible, transcripts were coded for resident status. The sample included 836 Florida residents, 171 residents of other states and 39 non-U.S. resident students. As can be seen in Table 19, a comparison of the mean scores on the SAT and the CLAST showed that non-Florida residents scored slightly higher than resident students for all tests except CLAST writing. Non-U.S. residents average CLAST scores were slightly lower than U.S. and/or Florida residents. When comparing SAT scores and overall grade point average, Florida residents performed slightly lower than students in the other two groups. An analysis of variance of the scores for all three groups using the Duncan Multiple Range Test indicated that statistically significant differences existed among the subtests by resident status in several categories. Overall, non-U.S. residents scored significantly lower than U.S. residents on the CLAST reading, writing, and essay subtests. In addition, significant differences in the scores for the CLAST essay subtest were found to exist among all three groups, with the average score for Florida resident students between those of non-Florida and non-U.S. residents. No statistically significant differences were observed when the scores for the SAT and the CLAST math subtest were compared for the three groups. Surprisingly, an analysis of variance for grade point average by resident status revealed the existence of statistically significant lower grades for Florida residents than non-U.S. students.

TABLE 19

ANALYSIS OF VARIANCE BY RESIDENT STATUS
FOR SAT, CLAST AND GRADE POINT AVERAGE

Variable	Mean Score	Standard Deviation	Significant Difference With
SAT Total			
Resident	983.1	145.6	
Non-Florida	1019.3	117.9	
Non-U.S.	1000.0	88.9	
CLAST Total			
Resident	321.3	25.8	Non-U.S.
Non-Florida	324.8	28.3	Non-U.S.
Non-U.S.	298.5	21.4	
CLAST Writing			
Resident	323.9	27.2	Non-U.S.
Non-Florida	323.9	27.1	Non-U.S.
Non-U.S.	303.8	26.1	
CLAST Math			
Resident	317.3	23.8	
Non-Florida	318.9	24.1	
Non-U.S.	313.1	22.6	
CLAST Essay			
Resident	5.3	1.2	Non-FL, Non-U.S.
Non-Florida	5.6	1.1	Non-U.S.
Non-U.S.	4.9	1.2	
Grade Point Average			
Resident	2.9	0.47	Non-U.S.
Non-Florida	3.0	0.50	
Non-U.S.	3.2	0.48	

* .05 level of significance using the Duncan Multiple Range Test.

Gordon Rule Requirements

Based on the information received from each institution concerning which courses, test or other mechanisms can be used to fulfill Gordon Rule requirements, transcripts were analyzed to identify students who both met and failed to meet these requirements. Specifically, the Gordon Rule (SBER 6A-10.030, FAC) requires that students take 12 hours of English or humanities and six hours of mathematics prior to being awarded an associate of arts degree or entry into the upper division of a public university. Very few community college transcripts (8) were found to lack the necessary coursework to meet the Gordon requirements. As can be seen in Table 20, three community colleges (Broward, Gulf Coast, and Santa Fe) each had at least one student who received an associate of arts degree without completing the Gordon Rule requirements. In contrast, however, each of the four state universities included in the study had a large number of students who did not complete the Gordon Rule requirements as specified by the institution prior to either receiving an associate of arts degree or completing the 60th hour of instruction. Of the 600 state university transcripts included in the study, 241 (40%) had not met the Gordon requirements up to and including the semester in which they completed the 60th hour of instruction.

The majority of the deficiencies were with the communications rather than the computations requirement. Of the 249 community college and state university students included in the sample who did not meet Gordon Rule requirements (24%), 192 students did not meet the communications requirement, 31 students did not meet the mathematics requirement and 26 students did not meet either the mathematics or communications requirements.

To gain further insight into the effect that not completing Gordon communication or mathematics requirements might have on CLAST performance, CLAST scores for students completing the Gordon requirements were compared to the scores of students who lacked the required coursework in communications or mathematics. CLAST reading, writing and essay scores for completers were compared to the CLAST scores of students who had not fulfilled the Gordon communication requirements. Similarly, CLAST math scores for completers were compared to scores for students who had not completed the Gordon mathematics requirement. Since the number of students failing to complete the requirements of the Gordon Rule in community colleges and state universities was so disparate, the comparison of scores was made separately by type of institution.

Since most university students do not receive an associate of arts degree, the semester in which the student completed the 60th credit hour was selected as a reasonable benchmark for ascertaining when upper-division status would begin. Utilizing the coursework contained on student transcripts up to and including the semester in which students completed the 60th semester hour, Gordon Rule courses were identified and coded. Using this cut-off point, two hundred forty-one (241) students lacked one or more of the courses, tests or other mechanisms identified by each state university as necessary for the completion of the Gordon Rule requirements. Therefore, of the 600 university transcripts included in the study, only 359 were found to have completed the Gordon requirements before receiving an associate of arts degree or completing at least 60 semester hours of coursework.

TABLE 20

STUDENT COMPLETION OF GORDON RULE REQUIREMENTS

Institution	Students Meeting Gordon Requirements	Number Not Meeting Gordon Requirements
State Universities		
Florida State University	101	49
University of South Florida	66	84
University of Central Florida	87	63
Florida International University	105	45
Subtotal	359	241
Community Colleges		
Broward Community College	109	1
Gulf Coast Community College	105	5
Pasco-Hernando Community College	110	0
Santa Fe Community College	108	2
St. Petersburg Junior College	110	0
Valencia Community College	110	0
Subtotal	652	8
Total	**1,011**	**249**

Table 21 illustrates the results of the comparison of CLAST scores for state university students who completed Gordon Rule requirements with those who did not. The means for all CLAST subtest scores of Gordon Rule completers were higher than the means of non-completers. A comparison of the various groups using the t-test revealed the existence of statistically significant differences in the mean scores of Gordon Rule completers and non-completers for CLAST math and essay subtests. The results suggest that students receiving less coursework in mathematics or writing scored significantly lower than those receiving all of the required coursework prior to completing the CLAST.

TABLE 21

COMPARISON OF MEAN CLAST SCORES FOR GORDON RULE COMPLETERS AND NON-COMPLETERS IN STATE UNIVERSITIES

Comparison of CLAST with Gordon	Mean Score		Standard Deviation		T Value	Significant
	Met Gordon	Not Met Gordon	Met Gordon	Not Met Gordon		
CLAST Reading with Gordon English	326.5	325.6	25.5	26.3	-0.42	
CLAST Writing with Gordon English	329.6	327.0	26.3	30.0	-1.09	
CLAST Essay with Gordon English	5.6	5.4	1.2	1.2	-2.03	*
CLAST Math with Gordon Math	320.1	298.6	22.2	21.6	-6.45	*

* .05 level of significance

Table 22 contains the results of the comparison of CLAST mean scores for community college students. Comparison of the groups using the t-test did not reveal the existence of any statistically significant differences between the mean scores of Gordon Rule completers and non-completers. Clearly, the potential of this analysis for community college students was severely limited given the small number of students (8) not having completed Gordon Rule requirements in community colleges.

TABLE 22

COMPARISON OF MEAN CLAST SCORES FOR GORDON RULE COMPLETERS AND NON-COMPLETERS IN COMMUNITY COLLEGES

Comparison of CLAST with Gordon	Mean Score		Standard Deviation		T Value	Significant
	Met Gordon	Not Met Gordon	Met Gordon	Not Met Gordon		
CLAST Reading with Gordon English	317.7	327.5	26.6	33.3	0.89	
CLAST Writing with Gordon English	319.2	325.7	26.9	23.5	0.59	
CLAST Essay with Gordon English	5.3	5.3	1.1	1.0	0.15	
CLAST Math with Gordon Math	315.3	308.5	23.6	2.1	-0.41	

* .05 level of significance

Comparisons By Academic Major

A variety of factors may influence student enrollment in different types of courses at different times in their undergraduate program. Earlier studies of the influence of curricular structure have suggested that a link exists between not only curricular content and achievement but also the particular sequence of coursework and achievement as well. Student academic major is one of several important factors influencing decisions in the selection of coursework. Where possible, student academic major was recorded for each transcript (See Table 4). For the purposes of this exploratory analysis, the mean CLAST scores for the categories of student majors with the largest number of students were selected for comparison. These categories were: business and management (228), engineering (81), education (72), undecided (72), and social sciences (64). It should be noted that the majority of the undecided majors were in community colleges.

Table 23 illustrates the results of an analysis of variance for CLAST subtest scores by major. Because of the existence of more than two groups for comparison, the Duncan multiple range test was used to determine whether statistically significant differences exist among the five groups. As can be seen, the results were somewhat varied for each subtest. While the mean score of undecided students was below that of the other majors for all subtests, only the CLAST reading score was significantly lower than the scores of each for the other four majors. As for the CLAST writing and math subtests, a different student major emerged with the significantly higher scores for each comparison. For example, education majors emerged as the group with significantly higher CLAST writing scores when compared to all other majors except social sciences. As might be expected, students majoring in engineering demonstrated significantly higher SAT and CLAST math scores than the other majors. Business, education and social science majors had the lowest mean scores on the CLAST math subtest. An examination of the CLAST essay scores by major revealed the existence of a statistically significant difference between the scores of undecided students and those majoring in education, with the education majors scoring significantly higher. A statistical comparison of grade point averages showed no significant differences among the five majors.

In addition to comparing the five majors with the largest numbers of students, the CLAST scores of students majoring in English or mathematics were compared to those of students in other majors. Of those students in the sample, 23 were identified as majoring in English and five students were majoring in mathematics. The CLAST reading, writing, and essay scores of students majoring in English were grouped for comparison and CLAST math scores of students majoring in mathematics were also grouped. Although the sample size was very small for this comparison, English majors were found to perform significantly better in the reading and essay portions of the CLAST when compared to students majoring in other disciplines. Similarly, students majoring in mathematics also performed significantly better than non-math majors on the CLAST math subtest. Although the mean score was higher, no statistically significant difference in CLAST writing performance was found to exist between English majors and non-majors.

Several national studies have documented the decline in the amount of general education coursework selected in favor of more courses in the student's academic major. Student transcript data were analyzed to determine if certain majors lacked general education coursework requirements to a greater extent than others. Gordon coursework completion rates by major were compared. Since all but eight community college students in the sample completed Gordon Rule requirements, this analysis was only made for state university transcripts. The transcripts of university students who did not complete Gordon Rule requirements were analyzed by major and by whether coursework was lacking in mathematics, communications or both. Table 24 illustrates this analysis for the five largest categories of majors not completing Gordon course requirements.

TABLE 23

ANALYSIS OF VARIANCE BY MAJOR FOR SAT, CLAST AND GRADE POINT AVERAGE

Category	Mean Score	Standard Deviation	Significant Difference With*
SAT Total			
Business	983.8	124.5	Undecided, Engineering
Education	978.7	126.4	Undecided, Engineering
Engineering	1035.6	120.9	Business, Education, Undecided
Social Sciences	1009.2	142.6	Undecided
Undecided	883.7	122.7	All other majors
CLAST Reading			
Business	321.8	27.5	Undecided
Education	326.0	26.9	Undecided
Engineering	323.9	25.2	Undecided
Social Sciences	328.1	24.8	Undecided
Undecided	313.0	27.1	All of the above
CLAST Writing			
Business	324.6	27.3	Education
Education	333.8	25.1	Business, Engineering, Undecided
Engineering	324.1	24.4	Education
Social Sciences	326.3	26.7	
Undecided	320.3	28.0	Education
CLAST Essay			
Business	5.4	1.1	
Education	5.6	1.1	Undecided
Engineering	5.4	1.3	
Social Sciences	5.6	1.1	
Undecided	5.2	1.2	Education
CLAST Math			
Business	318.3	19.6	Engineering
Education	315.4	23.9	Engineering
Engineering	335.2	22.1	All other majors
Social Sciences	317.0	22.5	Engineering
Undecided	314.8	21.4	Engineering
Grade Point Average			
Business	2.87	0.42	
Education	3.00	0.50	
Engineering	2.87	0.46	
Social Sciences	2.89	0.56	
Undecided	2.86	0.47	

* .05 Level of Significance Using the Duncan Multiple Range Test.

Students majoring in biological sciences and engineering showed the largest percentages not completing Gordon requirements prior to taking the CLAST, 67 and 48 percent respectively. Although further research is warranted, these results suggest that students either elected to enroll or were required to enroll in coursework in their majors during the first two years of college, thus making it difficult to complete general education and Gordon requirements prior to taking the CLAST. An additional factor may be that students were closed out of Gordon courses due to the shortage of sections and number of faculty.

TABLE 24

ACADEMIC MAJORS IN THE STATE UNIVERSITY SYSTEM WITH LARGEST PERCENTAGE OF STUDENTS NOT MEETING GORDON REQUIREMENTS

Major	STUDENTS NOT MEETING REQUIREMENTS				Percentage of Sample
	Communication	Math	Both	Total	
Biological Sciences	22	1	4	27	67%
Engineering	37	2	0	39	48%
Social Sciences	12	5	4	21	32%
Education	13	3	1	17	23%
Business and Management	45	4	3	52	22%

College-Level Examination Program (CLEP) and Advanced Placement

The Commission recommended in the 1987 Study of the College-Level Examination Program in Florida that "the Assessment, Testing and Evaluation Section of the Florida Department of Education, in cooperation with the Board of Regents and the State Board of Community Colleges, should conduct an empirical study to determine how students who take and receive credit for the CLEP general examinations in English and mathematics perform on the common placement tests and the CLAST examination." Subsequent to that recommendation, an empirical study involving CLEP English and math students was conducted. The results of that study which was released in Spring 1988 indicated that when compared to statewide averages, CLEP students scored significantly higher on all four CLAST subtests. While CLEP students in the transcript study were not identified by the type of CLEP examination they took and for which they received credit, they were identified as a CLEP group. Table 25 contains the means and standard deviations for the CLAST scores of CLEP students involved in the transcript study. As in the Florida Department of Education study, CLEP students had higher scores on all four CLAST subtests than other students. When the test scores of CLEP and regular students were compared in

the Commission's transcript study, statistically significant differences were found to exist for all subtests except math. CLEP students were found to score significantly higher than other students for the CLAST reading, writing, and essay subtests.

A similar comparison of CLAST scores was made between students receiving advanced placement credit and other students. Advanced placement students scored significantly higher than other students on all four CLAST subtests.

TABLE 25

COMPARISON OF CLAST SCORES FOR CLEP AND NON-CLEP STUDENTS

CLAST Subtest	Mean Score		Standard Deviation		T Value	Significant
	CLEP Students	Other Students	CLEP Students	Other Students		
Reading	331.5	321.8	26.3	26.0	2.87	*
Writing	334.3	324.2	27.3	26.2	2.86	*
Math	322.4	318.0	24.2	23.4	1.45	
Essay	5.8	5.4	1.2	1.1	2.40	*

* .05 level of significance

V. CONCLUSIONS AND RECOMMENDATIONS

The Commission's study provides an assessment of the degree of compliance with the general education curriculum requirements in state universities and community colleges. The study includes an analysis of research studies related to general education both nationally and in Florida; a survey of the perceptions of Florida state university and community college students regarding CLAST, general education and Gordon Rule requirements; a catalog analysis of the general education and Gordon Rule requirements; and a transcript analysis which determines which types of courses students actually take during their first two years of college.

The empirical transcript analysis includes an array of statistical information and comparisons by types of students, academic majors, and institutions. Tables and charts for displaying this information have been included, and issues which emerge from the data analysis have been identified. Student information reported on the transcripts was the only source of data utilized in the analysis. Although a variety of personal and environmental factors can affect student course selection and academic achievement, such variables were beyond the scope of this study. Furthermore, students have the ability to select from a wide range of courses and levels of difficulty to satisfy the general curriculum requirements. Caution must be exercised when drawing inferences beyond the student population selected for this study. For example, no transfer students, associate of science students, or students who completed coursework prior to 1984 were included in the transcript analysis.

Unlike many other Commission reports, this study presents a quantitative assessment of compliance with the general education requirements as an initial database. The study was designed to view the implementation of policy directives and some results of the implementation of these various policy directives. With such a purpose, this study does not lead to numerous recommendations. Nonetheless, after analyzing the available information and data, the Commission offers the following conclusions and recommendations.

On-Line Transcript Analysis

A Student Record Transcript System is currently being developed by the Florida Information Resource Network (FIRN) and will enable state university and community college transcripts to be on-line in a computerized network. This system is being designed to provide Florida school districts, community colleges and state universities with a means to exchange student records and transcripts electronically. The transcript system contains "messages" which are requests for transcripts and student records that satisfy these requests. The programs and the database are housed at Northwest Regional Data Center (NWRDC). The Florida Information Resource Network (FIRN) will provide the communications network over which request and response messages travel. FIRN developed the system with the assistance of the school districts and postsecondary institutions which participated in the system's pilot project during February through April, 1988. Several of the findings and conclusions in the current study could be re-examined using a larger student sample and a greater number of community colleges and state universities.

The Commission's analysis of student transcripts was limited to an examination of associate of arts recipients in community colleges and lower division students in the State University System. As such, state university transcripts were not analyzed to identify courses beyond the first two years of college nor to determine whether general education core curriculum courses were completed prior to receipt of the baccalaureate degree. An expanded transcript analysis would provide this additional information for state university students.

Recommendation:

1. **An expanded transcript analysis involving computerized student transcripts and at least 50 percent of Florida's state universities and community colleges should be conducted in 1991. This expanded analysis should include an examination of the general education hours taken by state university students throughout the baccalaureate program.**

The Gordon Rule Requirement

State Board of Education Rule 6A-10.030, FAC, requires that students complete at least 12 semester hours of communication courses and six semester hours of mathematics prior to receipt of an associate of arts degree or entry into the upper division. For the purposes of this rule, an English course is defined as any semester-length course within the general study area of humanities in which the student is required to produce written work of at least 6,000 words. The intent of this rule is to insure that students possess basic skills in writing and computation before taking advanced coursework. The transcript analysis and student survey have shown that certain postsecondary institutions have had a difficult time accommodating the additional instruction and monitoring necessary for the implementation of the rule. For community college students, completion of Gordon Rule coursework was not a major problem since completion of these requirements is necessary for graduation. A majority of the community college students surveyed by the Commission expressed a positive opinion of Gordon Rule requirements and also perceived a similar attitude among their faculty.

In comparison, a major concern was identified among state university students both in their attitude towards and completion of the Gordon requirements. In Chapter IV, the difficulty in defining when the upper division begins for state university students was addressed. For the purpose of this study, the semester in which the student completed the 60th hour was used as the point to end coding of student transcripts. Using this benchmark, 40 percent of state university system students in the study had not completed Gordon Rule requirements up to and including the semester in which they completed their 60th hour of coursework. The analysis showed that more students were lacking the communication requirement than the mathematics coursework requirement. Similarly, the student survey showed state university students as less supportive of Gordon Rule requirements and a majority of university students stated that the Gordon Rule communication requirements had not helped to improve their writing skills (Figure 3). Furthermore, as can be seen in Figure 1, most university students included in the survey perceived faculty as negative towards the Gordon writing requirement.

A major finding in the transcript analysis was that state university students who had completed the Gordon Rule requirements scored significantly higher on the CLAST math and essay subtests than students who had not completed this requirement prior to taking CLAST. It should be noted that the scope of this study did not include an examination of the students' last two years of undergraduate study in state universities to determine if the students actually completed the Gordon Rule requirement before graduation. Nonetheless, SBE Rule 6A-10.030, FAC, requires that Gordon Rule communication and computation requirements be completed prior to entry into the upper division and a significant number of state university students included in the sample failed to meet this requirement up to and including the semester in which they completed the 60th semester hour. The transcript analysis found that the additional preparation these courses provide appears to be in the best interests of the students attempting to pass the CLAST math and essay subtests.

Recommendation:

2. **Each state university and community college should examine its institutional policies and procedures to ensure that students are in compliance with SBE Rule 6A-10.30, FAC. Students must complete the communication and mathematics requirements of the Gordon Rule prior to entry into the upper division or receipt of the associate of arts degree.**

During the student interviews conducted during the course of this study, several students stated that faculty were negative toward the Gordon Rule writing requirement. In addition, students reported that certain assignments completed in fulfillment of the Gordon Rule writing requirement were either not returned or returned with only minimal corrections by faculty. Consequently, these same students stated that the grading was superficial and provided no real assistance to them in the identification of problem areas in their writing. Other students perceived faculty as overly concerned with the number of words in a writing assignment instead of its content or structure.

Students also reported a considerable range in the type of assignments made by faculty. While many students indicated that the assignments appropriately involved completion of an essay on an assigned topic, others stated that they satisfied the writing requirement by submitting diaries, class notes or other written materials such as resumes and test answers. Clearly, the use of such teaching mechanisms is contrary to the intent of the rule and has implications for further study. When such mechanisms are used, they do not facilitate improvements in the writing skills of students.

Recommendation:

3. **Institutional administrators should survey students and faculty involved in courses which are used to meet the Gordon Rule writing requirements. Efforts should be made by each institution to ensure that courses used to satisfy the Gordon writing requirement provide a positive learning experience for students, and that the content and quality of the assignments used to satisfy the writing requirement meet the institution's**

prescribed standards, are properly evaluated, and facilitate improvements in students' writing abilities.

The College-Level Academic Skills Test (CLAST)

The College-Level Academic Skills Test was implemented to ensure that college students graduating with an associate of arts degree or entering the upper division at a state university possess basic or essential academic competencies deemed necessary for success. As identified in Section 240.107, F.S., the CLAST was further intended to "serve as both a summative evaluation instrument prior to student enrollment in upper-division programs and as a source of information for student advisors." In support of these goals, the Legislature required that minimal standard scores on the CLAST be achieved by students before they could enter upper-level study.

Research on the factors related to student performance on the CLAST has been conducted by state agencies, postsecondary institutions and interested individuals. The Commission's transcript study reinforced several factors related to student achievement on the CLAST subtests. First, the effect of a student's entering academic ability and the relationship to subsequent CLAST performance seems clear. Students with lower SAT scores such as those in college preparatory programs scored significantly lower on all CLAST subtests when compared to students with higher SAT scores who were not enrolled in college preparatory courses. Second, a relationship appeared to exist between student performance on the math and essay subtest and completion of Gordon coursework. Students in the sample who had completed Gordon communication and computation requirements scored significantly higher on these two CLAST subtests than non-completers. Although this finding does not warrant an absolute cause and effect conclusion between completion of Gordon requirements and high CLAST scores, it does suggest some relationship between the two. Finally, the requirements of the academic major appeared to be a factor in determining CLAST performance for some subtests. The Commission's exploratory analysis revealed significant differences in the performance on some CLAST subtests when the student sample was analyzed by academic major. Although this difference may in some ways be tied to the aptitudes of the students in certain majors, some of the variation in scores may be explained by course content and selection patterns present within different academic programs of study.

If students are to achieve higher scores on CLAST subtests, they must be provided the opportunity for instruction, counseling, and support services as needed. Since changes in statute (Section 240.107, F.S., adopted in 1986) and State Board of Education rules (6A-10.0311, FAC) now permit students to take the CLAST anytime prior to the previously accepted 60th semester hour, the burden of identifying and providing assistance to remedial students rests more heavily upon individual institutions.

Recommendation:

4. **The results of the Commission's research efforts relating to the value of completing Gordon Rule requirements prior to attempting the CLAST should be communicated to community**

college and university administrators, faculty, and counselors to enhance student advisement.

Student Grades

Over 29,000 grades were coded on the 1,260 student transcripts included in the study. Grade frequencies and distributions for all transcripts were shown in Table 14 and displayed by type of institution in Table 15. As can be seen, over 20,000 grades or 69 percent were A's and B's; only 4.2 percent were D's and F's. When community college and state university transcripts were examined separately, the A's and B's in community colleges accounted for 74.1 percent of the grades compared to 63.7 percent in state universities. Three percent of the grades in community colleges were D's and F's compared to 5.6 percent in state universities.

Major discrepancies in grade frequencies and grade distributions were shown when individual institutions were compared. Among community colleges, the percentage A's and B's on student transcripts ranged from 71.7 percent to 79.0 percent. The range for D's and F's extended from 1.9 percent to 4.4 percent. Among state universities, the percentage of A's and B's on student transcripts extended from 59.2 percent to 68.5 percent. Similarly, D's and F's ranged from 4.4 to 6.4 percent. One factor which may account for the low number of D's and F's is the institution's forgiveness policy which was described in the last chapter. Most institutions have established a policy which allows the student to retake a course in which a D or F grade has been earned. The policy enables only the second grade to be counted in the student's grade point average (GPA) while the lower grade is "forgiven." Some institutions have placed a limitation on the number of grades per course or the number of courses for which grades can be forgiven.

Nonetheless, the results showed wide variance among institutions in terms of the percentage of grades given with consequent variation in the grade point average of students enrolled in each institution. Clearly, the large percentage of A's and B's given by the 10 institutions supports the public criticism of grade inflation prevalent in postsecondary education institutions both nationally and in Florida.

The grading standards of any institution are a legitimate subject of concern for the institution. While the grade given by an individual faculty member to any one student is the prerogative of the faculty member, the standards that the professor expresses in the class as a whole, or individual faculty grading patterns, are a legitimate concern of the individual institution as well as state policymakers.

Recommendations:

5. **The Board of Regents, the State Board of Community Colleges, and local board of trustees should monitor the grading patterns of state universities and community colleges. Periodic reports should be sent to individual institutions by the respective boards for review. Each institution should examine its grading standards, including its forgiveness policy, to ensure that the grading patterns reflect institutional standards and are being implemented as evidenced by actual grading patterns.**

6. **State policymakers should not depend primarily on institutional grades as a yardstick or reliable measure of educational competence or for prescribing the minimum accomplishments necessary for progression from one educational level to another.**

Student Advisement

The appropriate advisement of students in community colleges and state universities continues to be a concern for those involved in postsecondary education. The need for improvement in the area of counseling and advising was reiterated in the student survey conducted as part of the Commission's 1988 Master Plan Update. Academic advising is the process by which faculty members assist students in evaluating their academic progress, formulating realistic educational goals, and maximizing the use of institutional resources. An objective of the advisor is to guide the student in meeting academic program requirements for the course of study the advisee chooses and is prepared to pursue. When delivered properly, the advisement process can be a significant factor in the student's educational growth and development.

As an integral and necessary part of the education process, academic advising has presented problems for recipients as well as for the individuals providing the service. Students have repeatedly testified that the process is often inadequate and frustrating, and that academic advising in the State's institutions of higher learning needs to be improved.

The 1985 Florida Legislature provided the first in a series of appropriations for the development of a Student Academic Support System (SASS). This single system for each of the nine state universities provides support for the development of a student-specific academic program, helps integrate the student's program and planning for appropriate courses, facilitates the student registration process, aids in the replacement of counseling manuals which require constant updating, and enhances the transferability of students among the various postsecondary institutions.

The computerized support system is being designed to alleviate many of the problems experienced by students and faculty in the advising process by providing more accurate information about the student's academic status and needs, thus leading to more precise and reliable university curriculum guidance during the advisement and registration process.

The State Board of Community Colleges was first appropriated funds in 1986-87 to initiate the Student On-Line Advisement and Articulation System (SOLAR). The advisement package being developed will provide curriculum and course information to aid in articulation. The curriculum requirements for community colleges will also be provided so that students with access to CHOICES terminals may readily explore postsecondary academic programs available in public institutions.

The staff of the Board of Regents and State Board of Community Colleges have been working together to ensure that the systems are comparable. While the two projects have separate functions which complement one another, when used together they can provide essential information for students on transfer procedures, admissions requirements, course requirements, and specific

information as to student progress toward the fulfillment of the general education requirements.

Recommendation:

7. **The State University System, the State Board for Community Colleges and institutional administrators should review the development of the SASS and SOLAR student advisement systems at the state and institutional levels to ensure that adequate information is included on the Gordon Rule, general education core curriculum, and CLAST requirements.**

Conclusion

This study provides a quantitative assessment of compliance with the general education requirements as an initial database. The study was designed to view the implementation of policy directives relating to general education curriculum requirements in state universities and community colleges, and some results of the implementation of these policy directives.

The study includes an analysis of research studies related to general education both nationally and in Florida; a survey of the perceptions of Florida state university and community college students regarding CLAST, general education and Gordon Rule requirements; a catalog analysis of the general education and Gordon Rule requirements; and a transcript analysis which determines which types of courses students actually take during their first two years of college.

The empirical transcript analysis provides information on the kinds and amounts of coursework students actually take at state universities and community colleges. This analysis can be used to verify that students complete required courses as specified in institution catalogs and other written materials. As called for in this study, an expanded transcript analysis involving computerized student transcripts will strengthen and augment the database, and could be used to validate several recommendations contained in the report.

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APPENDIX A

SURVEY INSTRUMENT

Institution_____ Date_____

STUDENT OPINION SURVEY

DIRECTIONS TO STUDENT: Please complete each question as indicated.
THANK YOU FOR BEING CANDID IN YOUR RESPONSE.

Questions 1-8 Gordon Requirement

1. Have you ever completed an assignment as a "Gordon Rule" requirement?

   YES___ NO___

   If YES, please answer Questions 1-8.
   If NO, go on to question 9.

2. a. Have your professors expressed an opinion on the "Gordon Rule"?

   YES___ NO___

   b. If YES, were their opinions generally positive or negative?

   POSITIVE___ NEGATIVE___

3. Have you taken any courses in order to fulfill the "Gordon Rule" **writing** requirement that you would not have taken otherwise?

   YES___ NO___

4. Have you taken any courses in order to fulfill the "Gordon Rule" **math** requirement that you would not have taken otherwise?

   YES___ NO___

5. Do you feel that the "Gordon Rule" requirements have affected your grade point average (GPA) either positively or negatively?

   CHOOSE ONE:
   NO___
   YES, GORDON RULE COURSES HAVE IMPROVED MY GRADE?___
   YES, GORDON RULE COURSES HAVE HINDERED MY GRADE?___

6. Has fulfillment of the "Gordon Rule" interfered with your regular coursework?

   YES___ NO___

7. Do you feel that the "Gordon Rule" writing requirement has improved your writing skills?

   YES___ NO___

8. If you have taken CLAST, did the Gordon requirements help you to pass it?

   YES___ NO___ HAVE NOT TAKEN CLAST___

Questions 9-16 General Education Curriculum

9. Are you aware of the 36 hour general education requirement?

YES___ NO___

10. Have you fulfilled this requirement?

YES___ NO___ DON'T KNOW___

11. Will you (or have you) completed this requirement by the end of your sophomore year?

YES___ NO___

12. Has the fulfillment of this requirement helped you to pass the CLAST?

YES___ NO___ HAVE NOT TAKEN CLAST___

13. Do the student advisors at your institution provide you with useful information as to which courses would be appropriate to fulfill this 36 hour requirement?

YES___ NO___

14. Do you feel that the general education coursework has contributed to your personal development?

YES___ NO___

15. Would you prefer more credit hours in your major and less in general education coursework?

YES___ NO___

16. Have you acquired any knowledge or skills through these general education courses that have been useful in subsequent coursework?

YES___ NO___

Questions 17-19 CLAST

17. Do you think that the State should require students to take and pass the CLAST test before they obtain an associate of arts (A.A.) degree or enter the upper division?

YES___ NO___ DON'T KNOW___

18. If you have taken CLAST, are there items or questions on the examination that your courses have not prepared you for?

YES___ NO___ HAVE NOT TAKEN CLAST___

19. If you have taken any computer science courses to fulfill the requirements of the "Gordon Rule" in math, did they help you to pass the **math** portion of CLAST?

CHOOSE ONE:

YES___

NO___

DID NOT TAKE COMPUTER COURSES TO FULFILL GORDON REQUIREMENT ___

DID NOT TAKE CLAST___

General Questions

20. What is your present approximate grade point average (GPA)? (circle one)

(a) 4.0 (b) 3.5 (c) 3.0 (d) 2.5 (e) 2.0 (f) Below 2.0

21. What is your major? _____

22. Are you a (a) freshman (b) sophomore (c) junior (d) senior? (circle one)

23. What is your race? (circle one)

(a) White Non-Hispanic (b) Black Non-Hispanic (c) Hispanic
(d) Asian American/Pacific Islander (e) American Indian/Alaskan Native

THANK YOU FOR TAKING THE TIME TO ANSWER THIS SURVEY
AND FOR BEING CANDID IN YOUR RESPONSE

APPENDIX B

STUDENT COMMENTS

Summary of Student Comments

- Assignments completed in fulfillment of the Gordon Rule writing requirements are either not returned at all or returned with only minimal corrections by faculty. Several students complained that the grading appeared superficial and provided no real assistance to them in the identification of problem areas in their writing.

- Students perceived faculty as overconcerned with the number of words in a writing assignment instead of its structure or content. Several students discussed their frustration at having to expand essays beyond what they thought necessary to meet the minimum word requirements and, in doing so, hurting the overall quality of the written assignment.

- Students perceived faculty members who taught certain subject matter courses in which students complete a writing assignment as part of the Gordon Rule requirement to be more concerned with meeting the writing requirement than the subject matter. Several students stated that the subject matter such as history or humanities is not being adequately covered in those courses. In certain cases, students complained of having to rush through some textbooks or assigned readings because so much time was spent in attempting to meet the course's minimum number of words.

- Several students were aware of the Gordon Rule writing requirements but had no knowledge that the rule also covered computation courses.

Few comments were made regarding the Gordon Rule math, CLAST and general education coursework requirements. Some students had questions, however, concerning specific competency areas of the CLAST and the use of CLAST scores. It should be noted, however, that a large segment of the student sample had not taken the CLAST at the time this student survey was conducted. As for the 36 semester hour requirement in general education, some students stated that this requirement was repetitive of subject matter they had studied in high school. Many expressed the desire for more credit hours in their majors instead of in general education.

State of Florida
Department of Education
Tallahassee, Florida
Betty Castor, Commissioner
Affirmative action/equal opportunity employer